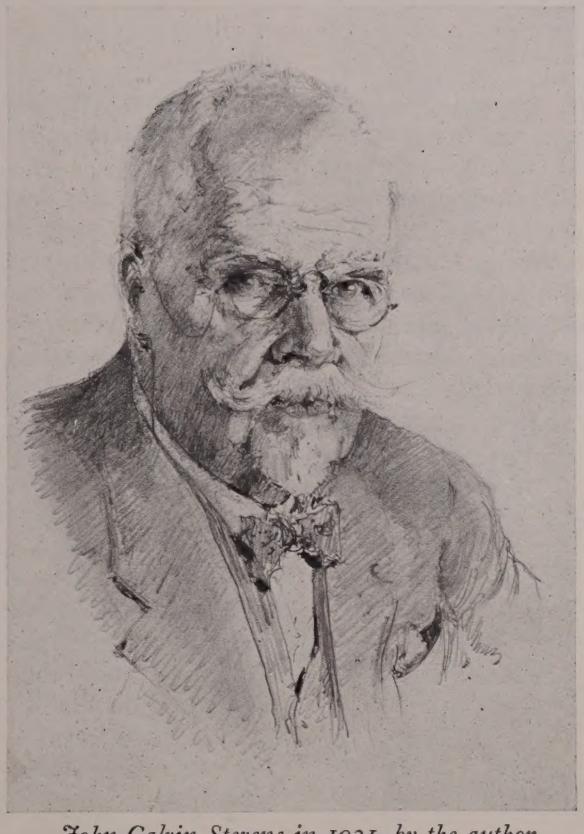
ARCHITECTURE

VOLUME LXVI JULY 1932 NUMBER 1

John Calvin Stevens

By Ellis F. Lawrence

IN his office John Calvin Stevens is called "The Boss," with a peculiar inflection which conveys admiration of his ability and power, as well as deep loyalty and affection. This has been so for fifty years. Today, with his son's name on the door and his son's son about to be graduated from a leading architectural school, the tradition of service he has built up in his profession and his community, and is maintaining as rigorously as ever, bids fair to be carried on for many more years.



John Calvin Stevens in 1931, by the author

"The Boss" is as loyal to his staff as they are to him. Not so long ago, one of his former office boys returned after an absence of twenty years, to find intact, as when he left, the same staff from secretary to head draftsman. In spite of the depression no one from the present staff has been let out. With such a record it goes without saying, John Calvin Stevens is a humanist and a fighter as well. His life has been as rich in serving as it has been in conquering obstacles.

Many architects are slaves to the pencil. Without its mark on the paper thought seems sterile and slow. Results are gained by calque over calque. In the medley of solutions resulting, too often a wrong decision is made in the final choice of parti. Not so with John Calvin Stevens, who has made the pencil a tool as it should be. With him the study period is carried on in his mind and the pencil is then called upon to express his thinking. This it does clearly and brilliantly.

The "seeing of the site" is to him a ceremonial. Every contour, tree, rock, stream, spring is recorded on the drawing-board in his brain. Orientation, vistas and outlooks, prevalent winds and neighborhood developments are studied. Then, and only then, in his mind he models as does the sculptor, composes and conserves until, presto, like magic the finished thing blooms in the freehand sketch that sends the client into ecstacies. (Stevens says this is "pretty strong," but look at his sketches and judge for yourself.) Strange to say, the finished product is usually as like the sketch as are two peas in a pod.

To the draftsman come Stevens's sketches on old envelopes, catalogues or what not—of bird's-eye and worm's-eye views, complicated roof intersections and details of entrance, or special features. The problem is solved before it comes into the drafting-room.

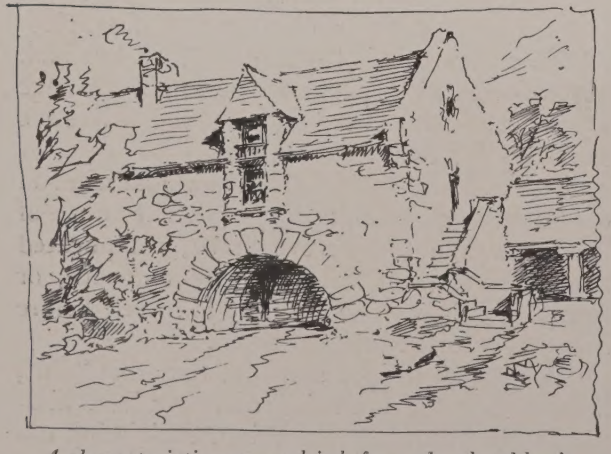
The school-trained assistant remarks: "But, boss, I don't feel the axis," and then loses himself in the charm of the thing, exclaiming enthusiastically as he works: "What a bully house

What Mr. Stevens was drawing almost forty years ago

to live in!" and "How it fits the site!" This is why a water-colorist of note, on being introduced to Stevens, exclaimed: "Oh! I know your work! You are the man who designs summer cottages that we can paint."

Another illustration of his extraordinary power of visualization: He is at Chinon, perhaps. After visiting the château, he sits in the shade of the awning at the café and sketches his impressions. His pals, admiring the composition, go off in a mad scurry to find it, but it was never there; still the sketch is clearly Chinon. Again, he sees a site with a poorly composed building on it. In an incredibly short time of observation, down goes a snappy indication of what should have been.

Another nineteenth-century client's sketch



A characteristic pen-and-ink from the sketchbook

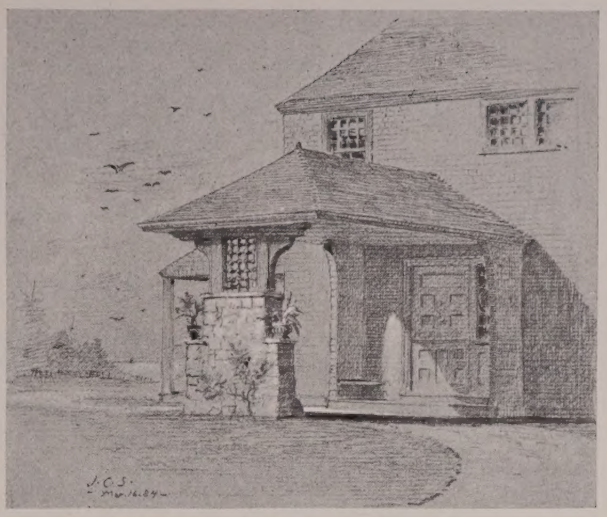
Professor Francis Chandler once said: "He who can design a State House can design a house." In Stevens's case the reverse is proved, for while he has to his credit a long list of achievements in commercial, civic, and ecclesiastical work, he came into the profession largely through the residential field. Certainly, too many of our State capitols have been designed by eclectics. The real house architect must of necessity approach his task as a functionalist, and Stevens's mental and æsthetic processes are functionalistic. However, he is something of a romanticist when it comes to Colonial work, for he lives in the midst of fine old examples which he has been called upon to remodel and restore. He is a sensitive interpreter of these early architectural traditions, but his understanding is that of one who knows his materials, his tools, and his people.

It is as a functionalist in the domain of residential architecture that lies, perhaps, his greatest contribution to the profession. Functionalists are always the modernists of their time. Could it be otherwise? In the early 'eighties, when Stevens entered the profession, the jig-saw and the lathe were prolifically serving their ostentatious, *nouveau-riche* clientele. William R. Emerson, of Boston, one of Stevens's prized friends, from whom he gained "much sense and enthusiasm," and Wilson Eyre come to mind as two of his confrères who, with him, were modernists of that day and dreamed as did Goodhue in his later years, of architecture simplified and restrained, expressing functions beau-

tifully and eliminating non-essentials. It was in their case a renaissance recognizing the eternal verities; a method of work and an approach that called for logical plan and good mass, as well as right use of materials. When one considers the mire of poor taste and cheap show out of which Stevens's work emerged, his achievement is the more noteworthy, and it is a privilege to record it here as epochal in its import and influence on contemporary architecture.

In 1889 Stevens and his partner, Albert Cobb, published a book called *Examples of American Domestic Architecture*, which received favorable comment, especially in the English press. Although the text was from the pen of Cobb, the following quotations are given to indicate the humanistic approach of the firm.

"The apparent need is that a reform in the prevalent style of American Architecture be instituted; that the art be released from the influence of an extravagant ideality, and directed instead by rational, righteous ideals. . . . Its accomplishment will assure for the art of Architecture an exalted place in the public esteem. . . . This question, then, of the necessity for reform in American Architecture, we propose to discuss. . . . When throughout any community there develop marked and painful contrasts in the circumstances of its people, so that while one large class of citizens possesses over-abundantly the requisites for supporting and em-



Pencil and Chinese white on charcoal paper—made nearly half a century ago

A pencil sketch that visualized a client's dreams back in 1901

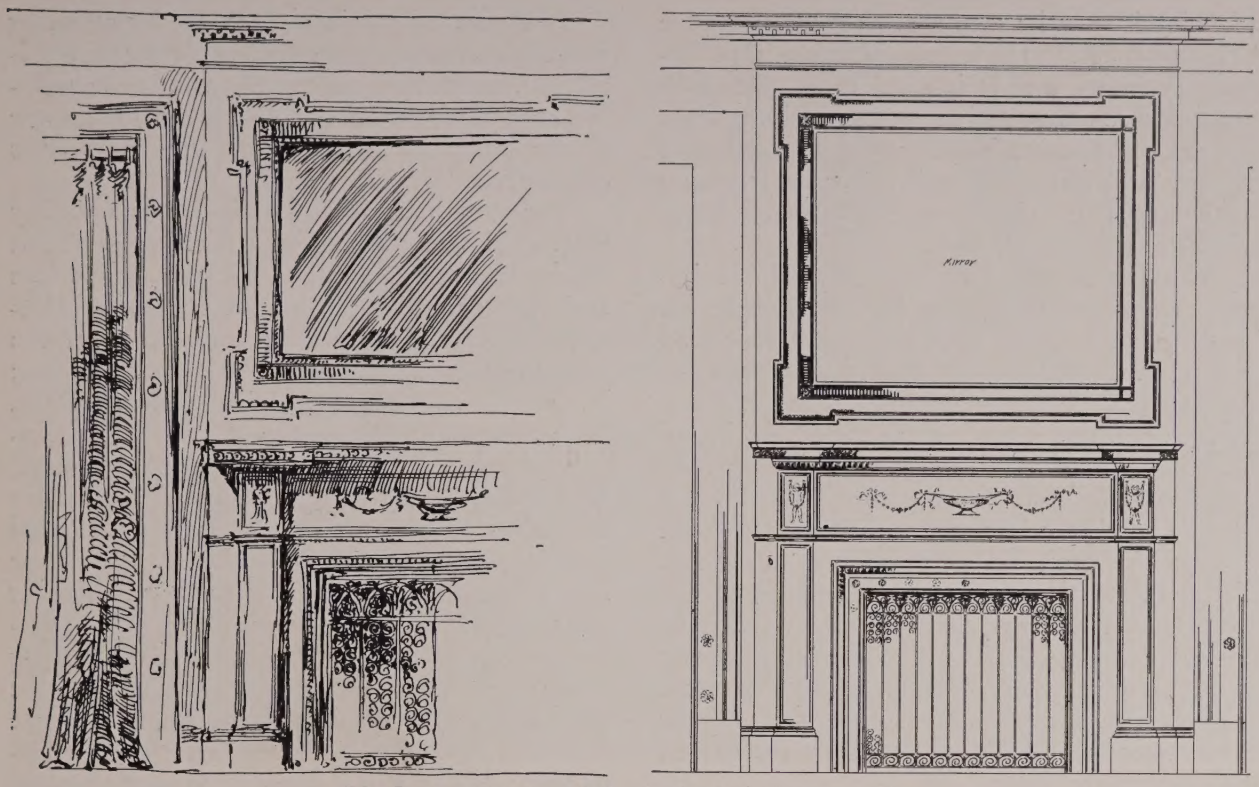
A quick study for a sloping site

bellishing life, another even larger class lacks extremely the very essentials of wholesome existence; immediate relief for this less fortunate class is to be sought, not by the development of additional resources, but by a different disposition of resources already at hand. For, while the world endures, such general privation falling in contrast with neighboring abundance upon any considerable body of industrious, well-meaning people, falls thus never because God's providence for them has failed, but rather because human mismanagement has hindered a just distribution of His all-sufficient bounties. . . . Thoughtful men have recognized this, and have been earnestly inquiring the cause of the trouble, and seeking remedies."

The wise educator recognizes that the best-educated man, be he school-trained or not, is, after all, self-educated. Stevens is self-educated, cultured, and well informed. His versatility is amazing. Pencil, pen, water-color, or oil—it matters little; he is a fine technician in them all. He is a painter of distinction. About him in his office are always a number of his paintings. These show the client that a mere architect can be a master of color and competent to advise in such matters.

For many years, each week-end, rain or shine, he with his group called the "Brushuns," have painted. Stevens works also on wood, using thin oil stains to make flat, exquisite murals. He is a gardener par excellence; was a

The felicitous combination of functionalism and mass in the Portland Water Works. John Calvin Stevens and John Howard Stevens, architects



The Boss's desires and the draftsman's interpretation

one-term councilman (one was enough), and formerly president of the Chamber of Commerce and president of the Portland Society of Arts. He is a leader in civic enterprises.

His office is conducted as a business establishment, as well as a studio of design. He is an efficiency expert, judged by the savings he has made for his clients in redesigning heating and power plants and factory layouts. With all these varied activities, his greatest hobby is his family. He is as loyal to his forebears as he is proud of his swarm of grandchildren. From all

A leaf, at actual size, from a sketchbook of 1892

of which it may be seen that Stevens is a prize "Digressionist." He is one of those rare human dynamos, and it is good that, after fifty years of strenuous, active professional and civic life, the dynamo is still generating a magnificent vitality and force. He will never be anything but young, if the old saying is true that it takes a hobby to retard old age.

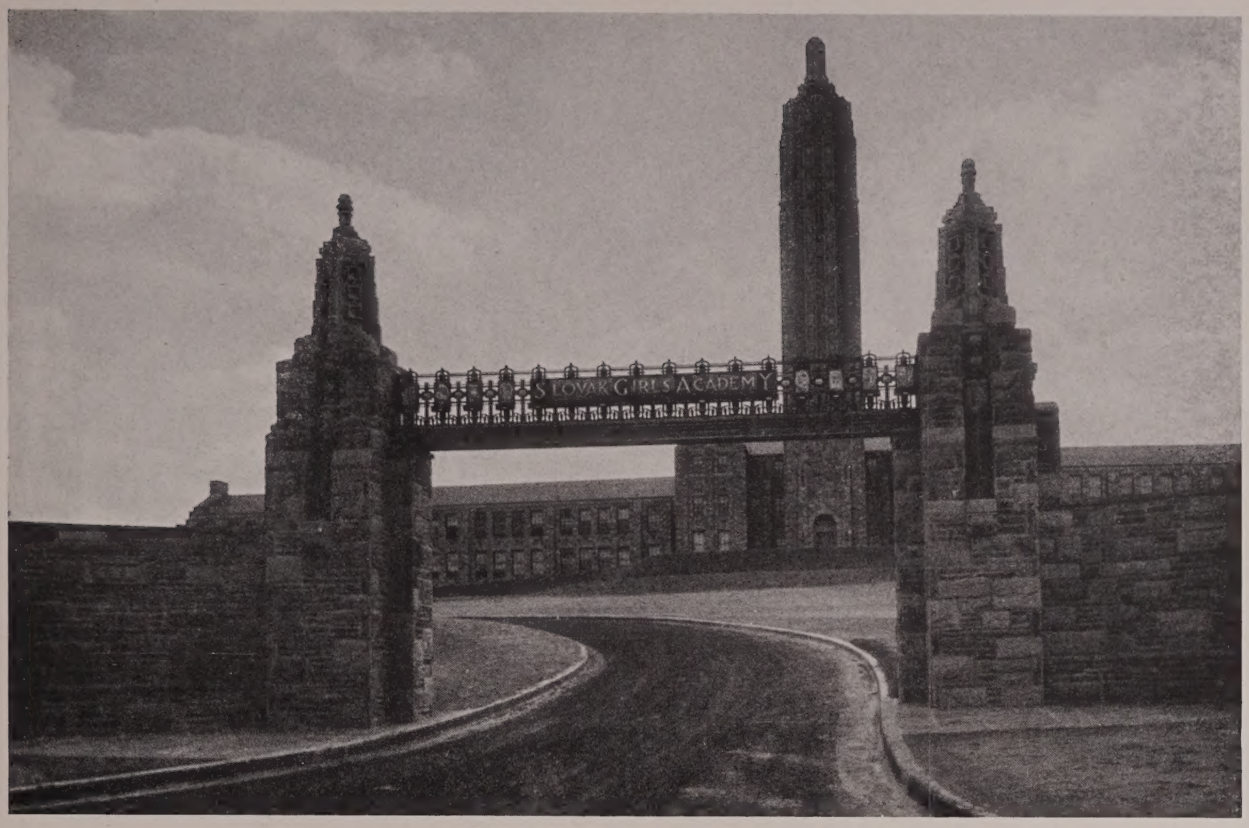
The Institute has of late stressed the importance of the services of the architect in the smaller communities. Few exemplify more than does John Calvin Stevens what that service can be. His office is an institution in Maine. That its fine reputation and ideals show no sign of breaking down after all these years, is worthy of note by itself. The leaving along the way of well-designed and well-built monuments to his talent is worthy of praise. When to all this is added a distinguished type of civic leadership, and a contribution of unusually high quality to the art life of his community, it is eminently proper to tell his story to his confrères, especially of the younger group who too often have eyes only for those eclectics who have suddenly discovered the signs of the times.

Some one has said: "It takes three men to be an architect—an engineer, a business administrator, and an artist." John Calvin Stevens, master builder, qualifies in all three, a rarity in these days of narrow specialization. With him there is no pigeon-holing, no separation of design from construction, of beauty from practicality.

Lest this all too brief account, by stressing Stevens's success in the field of domestic architecture, marks him exclusively as a house architect, the following list is given, mentioning some of the important work which has come or is coming from his office:

Portland Federal Post Office; Portland City Hall, as associate of Carrère & Hastings; Eastern Maine Insane Hospital, at Bangor; Maine Eye and Ear Infirmary; Madigan Memorial Hospital; Hebron Sanitarium; work at Southern Branch Home for Disabled Volunteer Soldiers; Y. M. C. A. Building and theatre at Bath, Me.; Fryeburg Academy; Physical Laboratory and Chemical Laboratory at Colby College, Waterville, Me.; several school buildings in Portland, Me.; building for Ricker Classical Institute at Houlton, Me.; L. D. M. Sweat Art Museum, Portland, Me.; town hall at Skowhegan, Me.; large shop building for Portland Water Works; enlargement Poland Spring House and other buildings at Poland Springs; Marshall House at York Harbor, Me.; The Emerson House at York Harbor; Hotel Pemberton, Nantasket, Mass.; several memorial libraries throughout the State; York Institute, Saco, Me.; many small churches; a number of small banks; power house at Gulf Island and power house at Bingham, Me.; laboratory for A. S. Hinds; laboratory for Schlotterbeck & Foss; Portland Boys' Club.

A pen drawing, at actual size, showing a picturesque bit at Cushings



Slovak Girls' Academy, Danville, Pa.

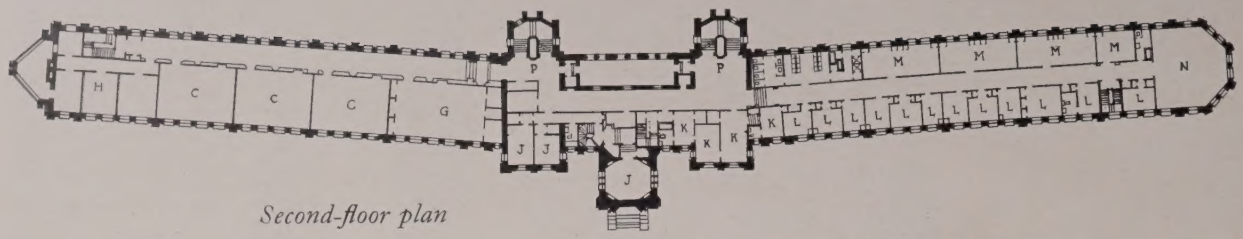
EXPRESSIONISM IN TOWER DESIGN AS EXEMPLIFIED BY HARRY STERNFELD, ARCHITECT

By Arthur T. North

FOR whatever use they may have been intended, towers that serve merely as utilities are successful only to that extent. Often there are other purposes for the tower, involving ideals that can be expressed architecturally, and when this is accomplished a high degree of perfection results. The materialistic objectives of this industrial and commercial age are not conducive to idealistic architectural expressions, especially in those towers that have been constructed to house a clock or a water tank, to serve as an observatory or merely to attain great height. Such objectives alone cannot inspire great architectural designs. It is, then, in the designing of a tower or campanile that is non-commercial in its association that architectural greatness can be attained. In addition to the original purpose and significance of the campanile, new functions are imposed upon it by the constantly increasing number of new conditions that exercise an inescapable influence upon contemporary civilization.

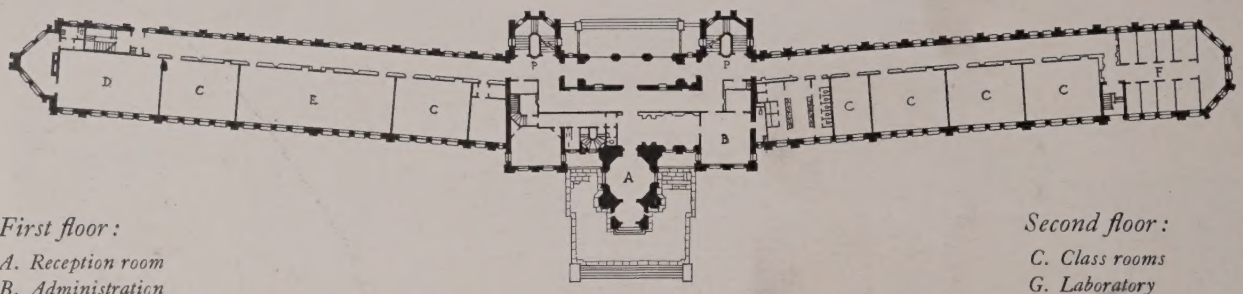
The tonal message of the bells, as it emanates from their elevated position in the campanile, overspreads the vicinage, be it urban or countryside. The significance and appeal of the annunciation has been realized and accepted from the beginning, but its interpretation in terms of architectural design, aside from merely housing the chime, has but rarely been accompanied with success as measured by contemporary bases of appraisal which must, of necessity, change with civilization's concepts.

Even though campanili were built to a considerable height during the Renaissance period, evidently their designers considered them as a combination of distinct one-story units. This



Second-floor plan

First-floor plan



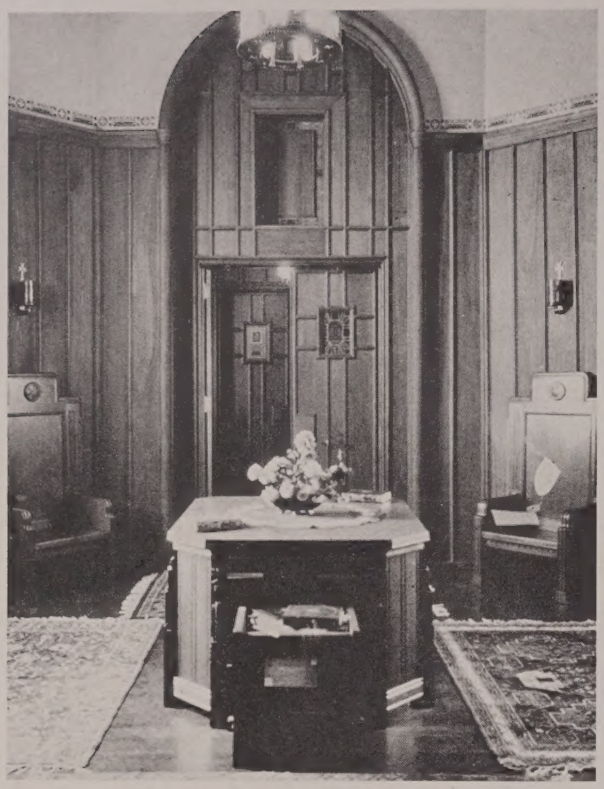
First floor:

A. Reception room
B. Administration
C. Class rooms
D. Recreation room
E. Temporary chapel
F. Music practice rooms
P. Stair hall

Second floor:

C. Class rooms
G. Laboratory
H. Infirmary
J. Chaplain's suite
K. Mother superior's and secretary's rooms
L. Single cells
M. Dormitories
N. Sisters' community room
P. Stair hall

was natural because the elements of architectural design previously developed were based on the conception of one-story buildings. Therefore, towers, after Giotto, usually have been designed as an assemblage of separate units each one imposed upon another. The appearance produced has been that of a weak, storm-shattered mast lashed together with a multiplicity of



Inside the main reception room, looking toward the main entrance

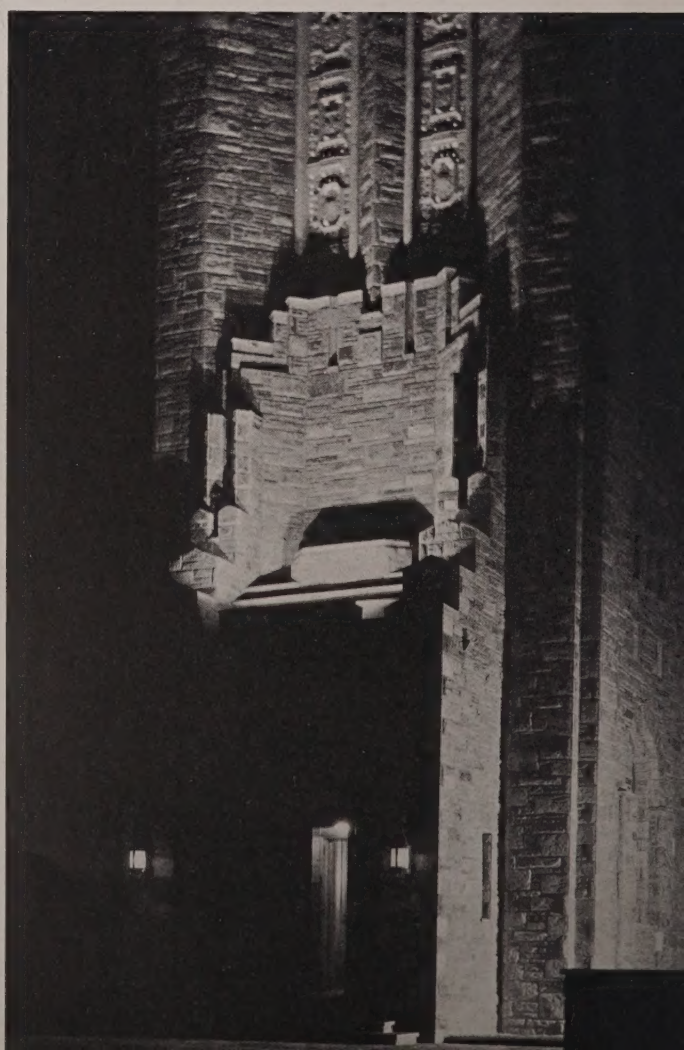
A corner of the main reception room, in the base of the tower

horizontal binding withes. In Giotto's Campanile these horizontal features were the continuing of the classic entablature element and its repetition—the echo of the classic accusation of a number of stories.

Sternfeld's campanile for the Slovak Girls' Academy, Danville, Pa., is a splendid example of a contemporary concept of the multi-story structure as an integrated unit or mass. In this campanile, Sternfeld has again demonstrated his mastery of architectural designing by incorporating those elements that interpret architecturally the dominating spiritual and mystical symbolism inherent in ecclesiastical campanili. It is the exposition of an environment which is intended to develop scholarship and æsthetic appreciation, and, also, to evoke a religious sentiment significant of the Catholic faith.

The Campanile.—Four massive buttresses of diminishing proportions, terminating at the base of the great quadruple cross that surmounts the structure, are united by sheer, vertical walls. In each of these walls are narrow, twin panels of pierced symbolical tracery that extend throughout their height. In the dark hours the faint illumination through the tracery

A detail of the front entrance at night, showing the start of the tower grille



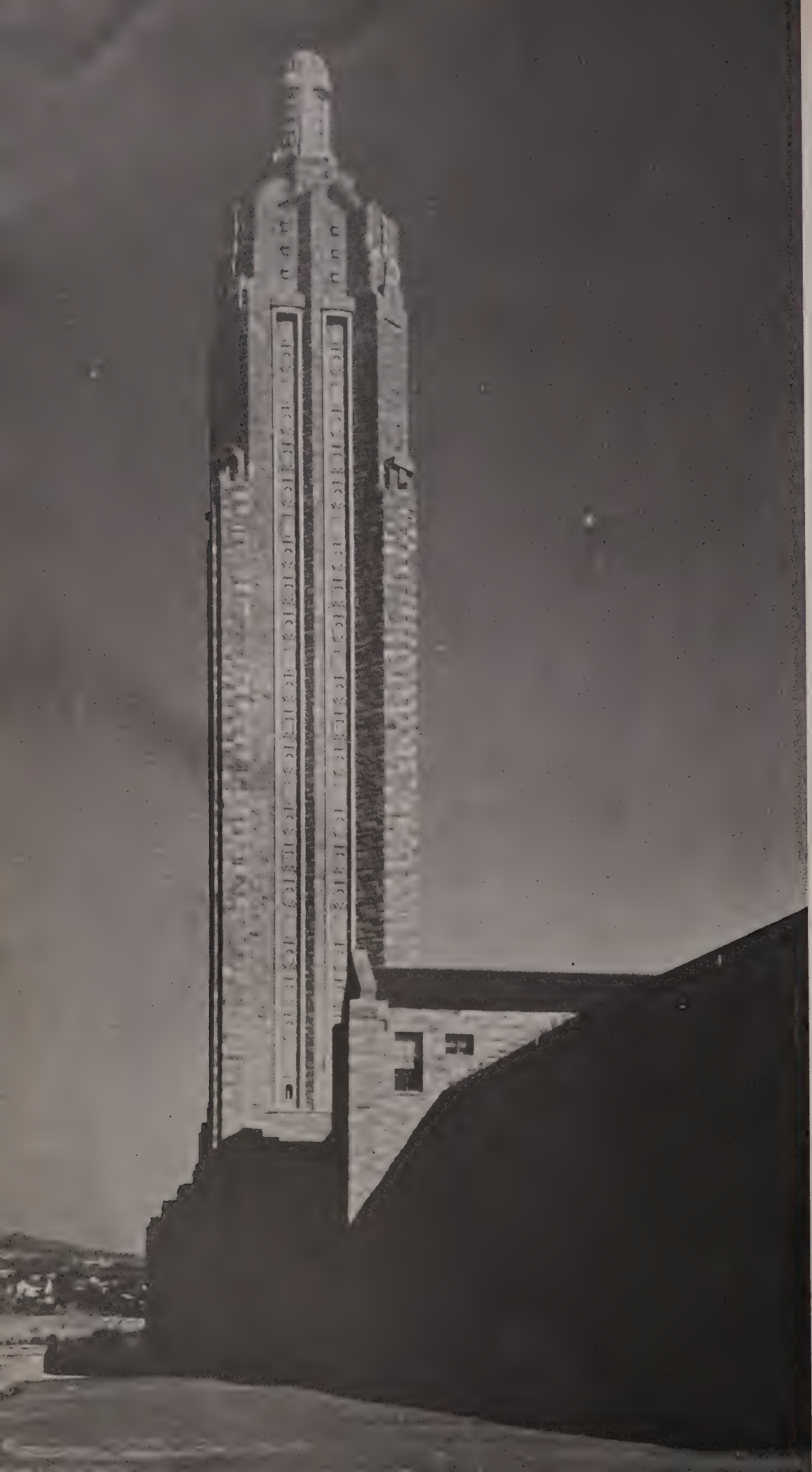
unconsciously leads the eye up to the illumination climax—the cross. Thus by day and by night the cross is the guide and symbol for man's aspirations and conduct and is an ever-present mile-post on the air-way that traverses the countryside. It is symbolic of the everlasting grace and beauty of a cultured scholarship attained in æsthetic environments under appropriate tutelage; of the compassion and peace of the ever-welcoming sanctuary for all sorts and conditions of men; of the dignity, majesty, and dominion of the immutable church, whose cross is the beacon-light for all who abide within its shadow or travel by day or by night; the music of its carillon overspreads and pervades the countryside with its appeal of harmonious sounds and reminder of duties to be performed.

Sternfeld's campanile, with its dominant note of aspiration, discards the restrictions of horizontal classic chaining and brings together the vertical elements of its mounting buttresses and flanking façades—a great, aspiring expression in stone, whose basic lines of composition are inspirationally carried upward, soaring toward a quadrifrons cross—a modern pæan of structural efficiency and proportional concord.

The south side of main reception room, looking into the waiting room

Looking along the loggia into the corridor leading to the class rooms

Ceiling of the main reception room under the tower



At left, the tower from the east. On the facing page, a detail of a stair tower with main tower behind and loggia at left

Night view of main entrance

The roads of Timgad run straight and clean, bearing still the ruts of long-perished chariot wheels

Timgad, City of Trajan

By Lucy Embury

Photographs by the French Line and the author

NOTHING ephemeral about old man Rome's way of building—we all know that. Still, when Timgad strikes the eye, platitude suddenly becomes living truth—a city sufficiently impressive, though only about a third of it is yet above earth after fifty years of excavating. Pompeii, which I saw later, seemed by comparison a toy town. Timgad's founding was a performance in its day unique—not a gradual growth like most older cities but planned and executed in its entirety at the behest of Trajan, who wanted to keep his restless legions busy and bestow upon them too some merited reward. Now that city-planning, town-building has become a popular pastime, a pious pilgrimage is much recommended for light-minded "Sunnysiders." For durability even the plumbing of Roman North Africa puts our own to shame!

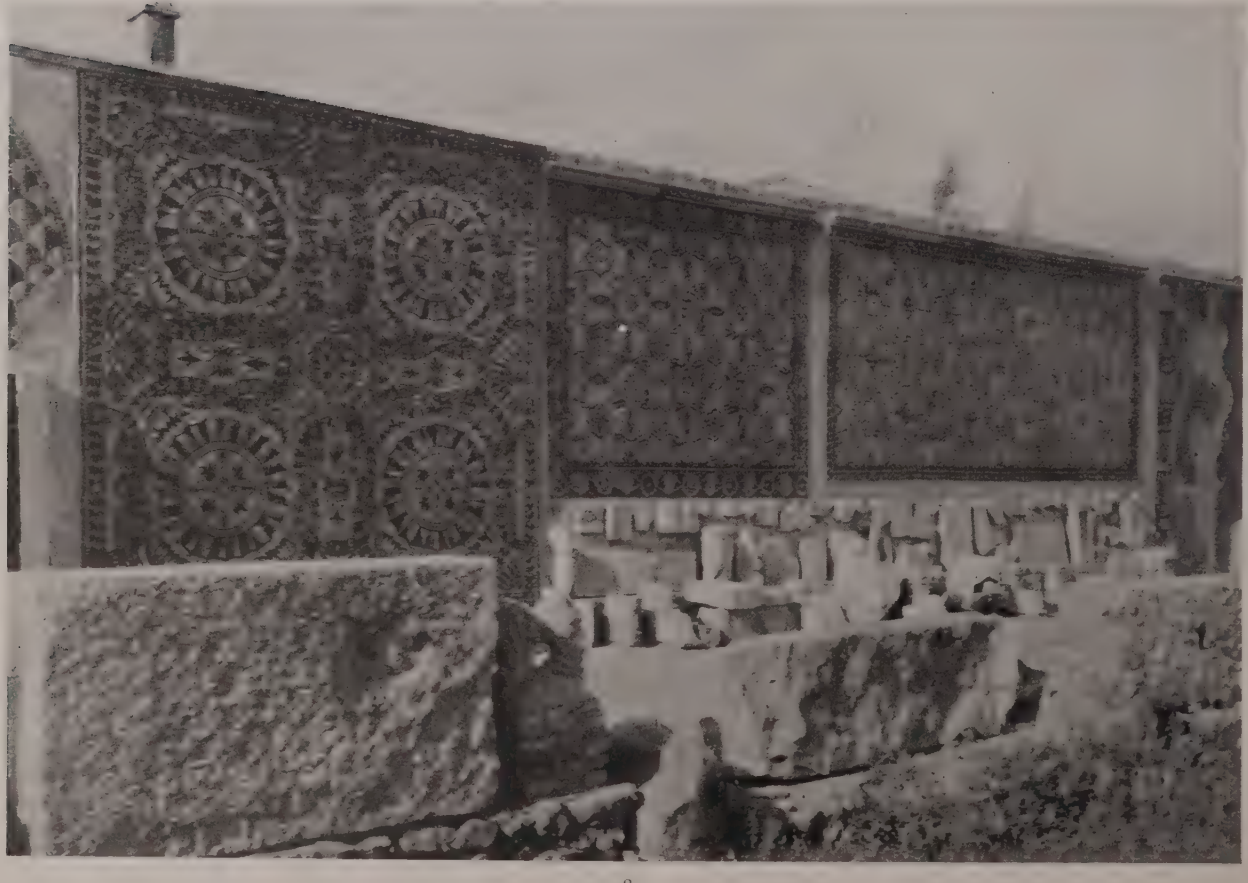
Saved by its inaccessible situation perhaps, perhaps by its extraordinary solidity, Timgad at any rate escaped the total demolition meted out to sister cities and affords for the student a perfect example of the Roman town of the period. With an approximate area of 150 acres there are many things to be seen. Its dividing roads run straight and clean, east to west, south and north—strange and not a little thrilling to feel beneath one's feet the ruts of chariot-wheels! Appropriately, the arch of Trajan dominates the scene. We walked beneath it, stood beside it, felt the truth of Major Bodley's remark—"certainly the most imposing monument of Algeria." Fitted against a mound's flank, the semicircular theatre, with over 3,500 seating capacity, is a fascinating place. One perches on the smooth, curved stone, staring down at the colonnaded stalls, expecting almost at any moment that toga-ed figures may step out upon the stage, that the vast half-moon will fill again with life and color.

Timgad believed in cleanliness, as the re-

Columns rise everywhere, bearing witness to the magnitude of the Third Legion's labor and achievement

The Arch of Trajan dominates the dead city and justifies its claim as "the most imposing monument of Algeria"

Rich recoveries from the old city have been gathered about and within the small museum; tessellated floors are mounted on the museum walls for the more convenient study of their patterns



East of Timgad lies Tebessa, known to the Romans as Theoeste, its basilica (probably fourth century) noteworthy among early Christian monuments of North Africa

mains of some thirteen or more public baths bear witness. Oh, yes, these chaps liked their luxuries, had their hot tubs and fresh fish! Very trick indoor reservoirs or aquariums are revealed in some of the now roofless villas. On the pavements of the forum little gaming tables mock the passer-by, as does the still legible inscription carved by some philosophizing soldier whose humor has survived some nineteen hundred years or so: VENARI LAVARI LUDERE RIDERE HOC EST VITA ("To hunt, to bathe, to gamble, to laugh, this is life").

Solemnity resides in the Temple of Jupiter where two façade columns stand staunch—a sheer fifty feet each by four and a half across. The finest of the mosaics recovered from the city are mounted upon the near-by museum walls where their patterns and colors may be clearly seen. Interesting to compare these with the tessellated work, also remarkably fine, found at Sousse.

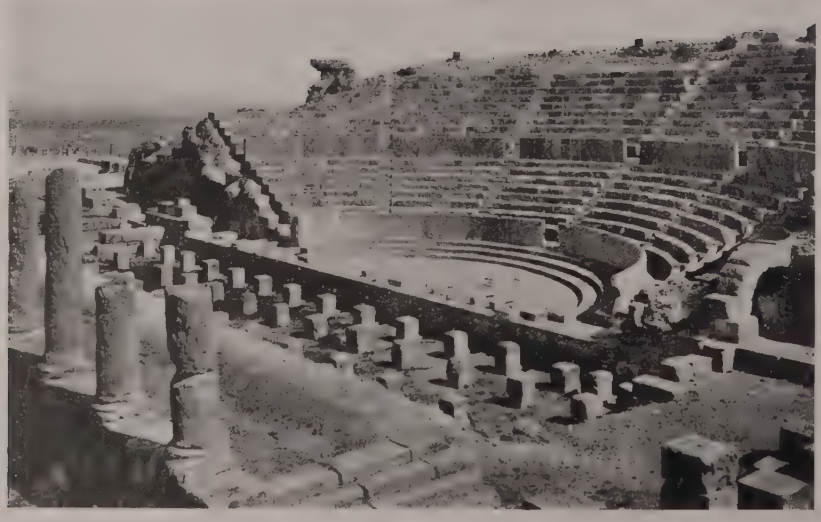
For a long while we wandered through Timgad, the ancient Thamugadi whose streets once hummed with hurrying men. We wandered and wondered, marvelling at the indomitable will which made so strong a city rise more than a hundred miles from the Mediterranean shore, 3000 feet above the sea, on a vast open slope in the heart of the Aurès.

At the risk of sentimentalism, the impression as set down in my notebook that day is here quoted—an impression not apt to recur in a lifetime:

"Timgad—a city whose rose and gray ruins are slowly again emerging from the sediment of centuries, thrusting valiant crumbled columns upward in the air after close to two thousand years of earth-bound oblivion. More a miracle it seems than any act of man, this resurgence of a buried civilization when one stands solitary amid the silent sites of Roman homes enlivened now only by the faint, sweet piping of desert birds and the flitting images of clouds which drift above the plain to curl and cling about encircling mountain tops. Pickers of choice places, these bygone builders—did they, one wonders, ever cease their stern work, soft play, and rest on sandalled feet staring, from the city's eminence, out upon the valley whose very soil is drenched in unimaginable hues, blends of a purple-mauve, emerald, coral, or ochre-dashed palette, beautiful past belief even through the chill and deadening rainfall (almost snowfall) of a February day?"

Veritably, not Timgad alone, nor Carthage, but all North Africa is more than an idler's playground; it is for all who love the roots of things, "a challenge, and a heritage."

Nestling against the flank of a natural mound the semicircular theatre offers a magnificent view of the city, in case the play should fail to interest



The theatre was built about 150 A. D. with a seating capacity of 3500

Characteristics of Some Important New Cabinet Woods: II

By Alfred Berman

PADOUK (*Pterocarpus*), also known as paudaouk, vermillion, and East Indian mahogany, is imported from Burmah, the Andaman Isles, and the West Coast of Africa. The wood is very dense and hard, straight grained, and of a fairly open-pored or coarse texture. In color it ranges from crimson or cherry-red to various shades of brown. In figure it is found stripey and mottled. The chief attribute of padouk is its striking vivid coloring. It is unfortunate that the wood has a tendency to change color with continued exposure to air and sun. Its natural lustre also dims with exposure, and the wood consequently loses much of its charm.

PALISANDRE (*Dalbergia*) is not a new wood at all, but is actually the European (French and German) name for rosewood. The rosewood most commonly used for fine cabinet work comes from either the East Indies or from Brazil. In the former case the wood is generally a dark purple color, and when sawn on the quarter produces a striped effect. In the case of Brazilian rosewood, the wood is generally of a more brownish hue, somewhat lighter in color than the East Indian wood, but wide variation is the rule. Of late, Honduras rosewood has become quite plentiful on the market and furnishes some very pretty wood. Rosewood lends itself to some striking treatments, but unfortunately is given to checking on account of its density.

PRIMAVERA (*Tabebuia*) is, strictly speaking, not a new wood, having been offered on the market since 1900 under the sobriquet of "white mahogany," but in the past few years it has attained a widespread popularity and is the subject of many inquiries. Primavera is the product of a tree which grows only in Mexico and Guatemala, where it is accounted one of the most beautiful trees to be found. In color the wood ranges from a pale yellow or cream color to a light yellowish brown. It is often highly figured in a striped or broken mottle effect. Its physical characteristics and its figure are in many ways similar to those of genuine mahogany and African mahogany. Primavera is quite light in weight, but fairly strong and firm. It works easily and finishes well. At one time it was almost exclusively used where a light-colored animated wood was required, but recently it has been rivalled by avodire, which has the advantage of being more uniform in color and more sound.

ENGLISH SYCAMORE (see English Harewood).

TAMO WOOD (*Fraxinus mandschurica*), known also as Japanese ash and Manchurian ash, is a native of both China and Japan. The tamo tree is a bona-fide member of the true ash family, and as such bears close resemblance to our American ash, as well as to wood of the familiar English and Hungarian ash trees. Its structure is dense, and at the same time the wood is very open-pored. Its wood is very heavy and tough, and is marked by the same porous veinings, resulting from the annual rings of growth, which mark the entire ash group. In color the wood ranges from a very light tan or cream color to a rich brown or a dark gray, with many intermediate

Padouk

Palisandre, or rosewood

Primavera

shades. In figure it presents as great a variation as in color. From a delicate narrow "pencil-stripe' figure, lacy and gossamer, it runs the gamut of every conceivable twist and curl, with fantastic whorls and eccentric gnarls, all depending on the manner of its growth and the fashion in which it is cut—whether sliced on the quarter to produce the straight stripe, or cut on the half-round, a variation of the rotary cutting method which produces the fantastic figure described above. Often the wood has a little rolly curl or blister which is termed "peanutshell figure." Tamo requires careful handling in the veneering process, due to the porous nature of the veinings, which easily permits the seepage of glue, and consequent discolorations. It should be noted that well-figured tamo brings a high price on the market and entails a high percentage of waste in manufacture into panels. The striking and beautiful effects which the hands of a skilled artisan are able to produce with this wood fully repay the expense involved.

TIGER WOOD (*Lovea klaineana*), also known as African walnut, Congowood, or tanoa wood, is a native of the West Coast of Africa. It is not related to the walnut (*Juglans*) family, nor does it bear any resemblance to the various species of walnut. Instead it is a member of the *Meliaeceæ* family, to which mahogany also belongs, and is very similar to African mahogany in its physical characteristics, texture, and figure. In color it is a light brown with a golden tinge. Its most characteristic figure is a distinct, broad, and regular stripe, shading from the brown to the gold or pale yellow. Tiger wood is procurable very sound, uniform in color and figure, and in excellent lengths and widths.

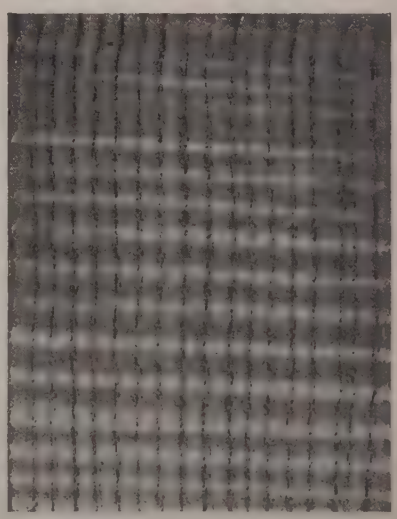
YUBA (*Eucalyptus obliqua*), also known as Tasmanian oak and fiddleback oak, is actually no more an oak than Brazilian walnut is a walnut. It is in reality a member of the Australian eucalyptus family, and as such suffers from deposits of gum and resin which are the curse of the wood and which offset its many other excellent qualities. In color it ranges from cream to a light brown, and is generally marked by a very fine fiddleback figure which traverses the wood from end to end, when it is cut on the quarter. This fiddleback figure is sometimes supplemented by a broken stripe or mottle figure which is very pretty. Yuba is moderately heavy and dense, of wavy grain and rather coarse or open-pored texture. It finishes well, and, when gum deposits and streaks can be eliminated, makes a charming light-colored wood, suitable for wall panelling or furniture. It stains excellently.

ZEBRA WOOD, also known as zingana and zebrano, is the product of a gigantic tree indigenous to West Africa, and is thought to be a member either of the genus *Macrolobium* or the *Leguminosæ* family. It is not to be confused with the long-familiar zebra wood of Guiana or the Andaman Islands near India, to which it is in no way related. When the wood is cut or sawn on the quarter the result is a series of parallel stripes, dark brown or black, spaced on a light brown or tan colored background, thus giving rise to its name. The wood is fairly hard and dense, but works well. Its principal detriment is the frequent presence of gum deposits, which must be eliminated before the wood can be used for fine cabinet work. It is also frequently disfigured by numerous wind breaks, which render it incapable of finishing well. In Europe, and particularly Germany, zebra wood has been extensively used for furniture and for panelling in the modernistic style. It lends itself to striking and even fantastic effects, and is particularly effective employed as a border to set off other woods and in marquetry work. The wood is procurable in excellent dimensions and with a wide variety of figure and markings.

Before closing these notes on these newer woods, a few words should be set down about some of the

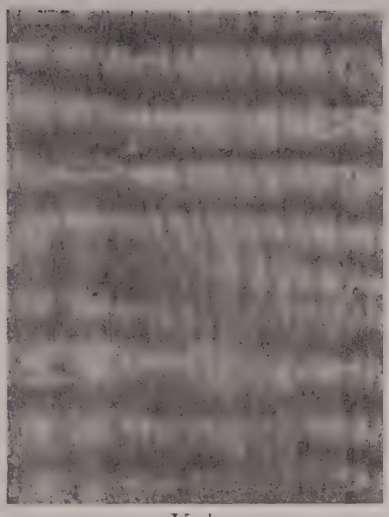
Tamo wood, cut on the half round

Note: All of the illustrations in this article show the wood at actual size; in each case, excepting of course, the burls shown on the following page, the grain runs with the longer dimension of the rectangle, though in some cases the figure may indicate otherwise



Tamo wood, quarter-cut

Tiger wood



Yuba

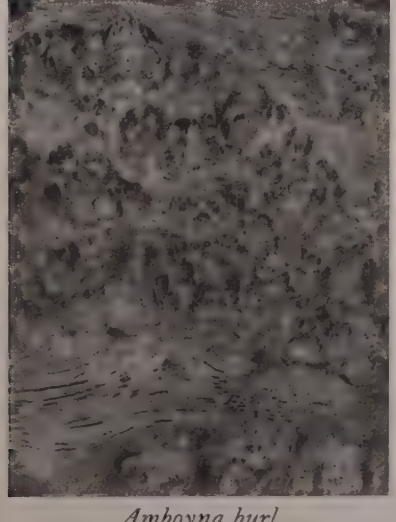
Zebra wood

burled woods which are apparently coming into ever-increasing favor. A burl (or burr, as the English have it) is a cancerous growth on the side of a tree, which clings to the tree like a huge wart. How these burls are formed is still the subject of much speculation, but the most commonly accepted theory is that they are the result of some form of injury or lesion inflicted by man or animals on the growing tree. The wood of a burl is generally very highly figured, the grain often running in circles or other curvilinear forms, in a very involved fashion. It is interwoven with aborted buds, similar to bird's-eyes, swirls, gnarls, infiltrations of coloring matter, and many other features which make of burled wood a complex and often strangely beautiful work. Unfortunately, burls generally come in small sizes, with all kinds of holes and other defects.

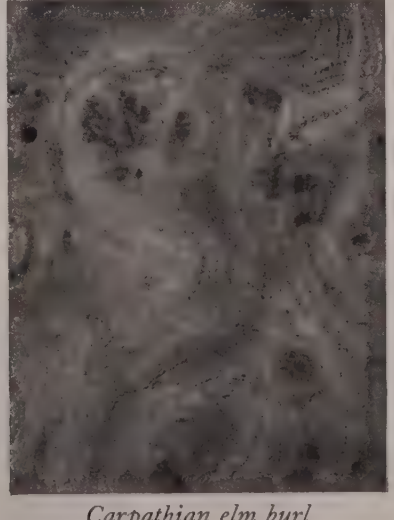
AMBOYNA BURL (*Pterocarpus macrocarpus*), a brown wood, flecked with red and yellow, from the East Indies. It has little gnarls and knots not unlike those of thuya burl. Due to its color and texture, it bears a certain resemblance to sheets of cork. It is available in squares of eighteen inches or two feet.

CARPATHIAN ELM BURL (*Ulmus comfestris*) is a tan or brownish colored wood, indigenous to almost all parts of Europe, where it is known as the common or English elm. It is a light brown in color, fine textured, hard, tough, and strong. It has a prominent series of veinings which wind a circuitous path through the wood in a delicate fashion. The veneer is procurable in sheets three feet long, but is very defective, requiring much patching.

MYRTLE BURL (*Umbellularia californica*) is a native of California and Oregon. The wood is fairly heavy, hard, firm, and fine textured. It is ordinarily a rich yellowish brown in color, but displays the most eccentric variations both in color and in figure. Myrtle burl veneer is procurable in sheets as large as six feet by three feet, and is therefore better suited for wall panelling than most other burls.



Amboyna burl



Carpathian elm burl

Myrtle burl

Left aisle in the new choir of Washington Cathedral, recently completed. Frohman, Robb & Little, architects

The proposed post office and court house at Binghamton, N. Y. Conrad and Cummings, associated architects; LorimerRich, consulting architect

The Canal Street approach to the West Side Highway, New York City, lifting vehicular traffic off the streets along the Hudson. Sloan & Robertson, architects

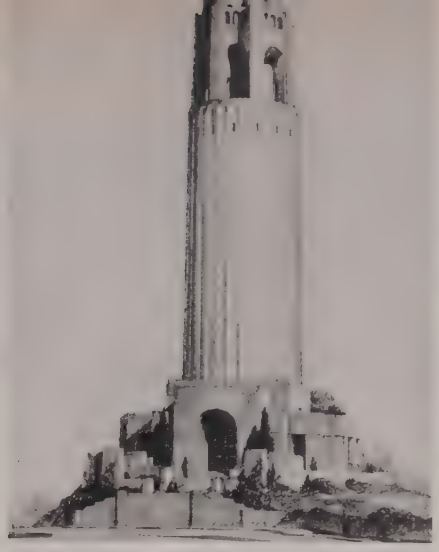
Architectural Ne

The proposed West 135th Street Building of the Y. M. C. A., to cost a million dollars, scheduled for completion on November 1, next. James C. Mackenzie, Jr., architect

The recently completed Joslyn Memorial, built of Etowah Pink marble at Omaha, Neb. John and Alan McDonald, architects

The main portico of a model representing the United States Supreme Court Building now under construction at Washington, to cost more than eight million dollars. Cass Gilbert, architect

The proposed post office for Wheaton, Ill., now under construction, for which the federal appropriation is $105,000. Rebori & Wentworth, architects



Approved design for the Lillie M. Coit Memorial Tower, Telegraph Hill, San Francisco. Arthur Brown, Jr., architect

The recently completed Shakespeare Memorial Theatre, Stratford-on-Avon, won by Miss Elisabeth Scott in competition. Scott, Chesterton & Shepherd, architects

Photographs

Henry H. Saylor

Reproduction for Bryant Park, New York City, in wood and plaster, of the Federal Hall. Designed by Charles Pierre L'Enfant, 1789. Joseph H. Freedlander, architect of the reproduction

The recently unveiled Tomb of the Unknown Soldier, Arlington, Va.—a solid block of Colorado Yule marble. Lorimer Rich, architect; Thomas H. Jones, sculptor

Proposed 50,000-watt radio transmitter station of WCAU, Delaware County, Pa. Gabriel Roth, architect

BOOK REVIEWS

PLANNING FOR GOOD ACOUSTICS. By Hope Bagenal and Alex. Wood. 415 pages, 6¼ by 9¾ inches. Illustrations from photographs, plans, and diagrams. Printed in Great Britain. New York: 1931: E. P. Dutton & Co., Inc. $6.75.

The day in which an architect builds an auditorium, depending merely upon hope to make it acoustically satisfactory, is past. Sabine's recognition of the fact that there is a science of dealing with sound waves, as there is a science of dealing with waves of light, inaugurated a new literature on the subject. Mr. Bagenal is a lecturer in the acoustics of buildings at the Architectural Association School, London; Mr. Wood is lecturer in experimental physics in the University of Cambridge. In a book profusely illustrated they have presented the theory of sound wave motion and the practical science of controlling these waves as desired in buildings.

ORIENTAL RUGS AND CARPETS. A Comprehensive Study. By Arthur Urbane Dilley. 303 pages, 6½ by 11 inches. Illustrations from photographs, maps, and reproductions of rugs in full color. New York: 1931: Charles Scribner's Sons. $15.

Mr. Dilley has attempted here no mere "guide to Oriental rugs," no superficial characterization of those coming from widely different peoples and widely different lands. He attempts rather an interpretation of the spirit of rugs as revealed by the record of national personality. In his hands the making of rugs appears to us not as an industry, but rather as an art—the expression of a people. The illustrations, particularly those in color, are reproduced with unusual fidelity from specimen rugs in various notable collections.

REGIONAL PLAN OF NEW YORK AND ITS ENVIRONS. Vol. II, The Building of the City. By Thomas Adams. Assisted by Harold M. Lewis and Lawrence M. Orton. Foreword by Frederic A. Delano. 600 pages, 8½ by 11 inches. Illustrations from drawings, maps, photographs, and diagrams. New York: 1931: Regional Plan of New York and Its Environs. Price, together with Vol. I issued in May, 1929, which dealt with communications and land uses, and consisted largely of maps, $25.

Nine years' time, more than a million dollars, and the work of many men, have gone into the making of the Regional Plan, of which this is the final summary. There seems no question as to the fact that it is the most comprehensive and ambitious programme ever laid down for the development of a modern city. The Regional Plan of New York and Its Environs springs from the vision of a committee of citizens. It has behind it no political authority. There is no organization whose duty it is to put it into effect. It is a plan presented to the people of New York to use as they may have some share of that original vision and the will to make it a reality. While the results of this long and skilful research are quite specific in relation to one community, the reasoning and the fundamental principles indicated are those which must govern the future development of any large community. In this respect the record will in all probability be a source book for several generations.

VITRUVIUS ON ARCHITECTURE. Vol I. Loeb Classical Library. Translated into English by Frank Granger. 311 pages, 4¼ by 6½ inches. Illustrations from line drawings. Printed in Great Britain. New York: 1931: G. P. Putnam's Sons. $2.50.

Dr. Granger gives us in convenient form the oldest manuscript of Vitruvius, probably of the eighth century. The Latin and the English are on facing pages, enabling easy comparison. As Dr. Granger says, the Latin closely resembles the workshop and the street. In his translation he has tried to retain the vividness and accuracy of the original without too much striving for smoothness of rendering, in the hope that the reader may discern the genial figure himself through his utterances.

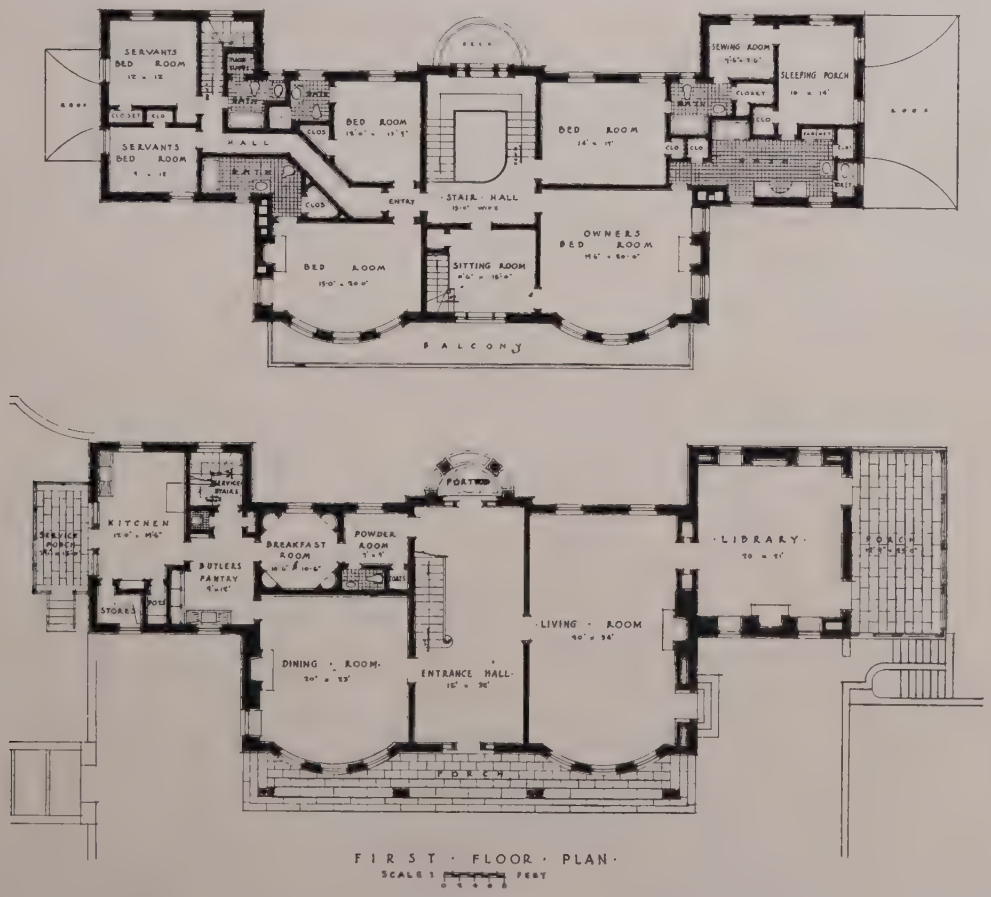
ENGLISH WROUGHT IRONWORK. Mediæval and Early Renaissance. By Tunstall Small and Christopher Woodbridge. 20 plates, 10 by 12½ inches. Illustrations from line drawings. Printed in Great Britain. Loose plates in portfolio. New York: 1931: William Helburn, Inc. $4.

This portfolio is a companion volume to "English Wrought Ironwork of the Late 17th and Early 18th Centuries" by the same authors, and is based on the authors' conviction that one who would acquire a real feeling for English ironwork must have, in addition to photographic illustrations, these full-size and small-scale measured drawings of typical examples.

ARCHITECTURAL ACOUSTICS. By Paul R. Heyl. 8 pages, 6 by 9 inches. Illustrated with a diagram. Pamphlet binding. Washington: 1931: U. S. Department of Commerce. 5 cents.

HOW TO OWN YOUR HOME. Second edition. Prepared by John M. Gries and James S. Taylor. Foreword by Herbert Hoover. 26 pages, 5¾ by 9 inches. Building and housing publication, BH17. Pamphlet binding. Washington: 1931: U. S. Department of Commerce. 5 cents.

The rear façade with its two-story bays and its wide parapet is clearly adapted from the Regency. The long shallow floor plan takes advantage of the breezes during the summer months



The living-room walls are delphinium blue; the rug a Savonnerie in rust with the central medallion in white, blue, rose, lilac, and yellow; damask draperies are yellow

Red, white, and old gilt are combined in the entrance hall. The floor is of wide walnut boards; the rugs are old needlepoint in black with the floral pattern in faint greens, pinks, and white

In the dining-room Allyn Cox has painted a sequence of murals in a manner that invests his Chinese figures with amazing reality. The Chippendale chairs are upholstered in white leather. An unusual cornice is painted in blending colors with a frieze of ivy in its own green

On the cross axis of the living-room. Mrs. Goodrum's furniture is extraordinarily good. While much of it is English, a good deal of it is American, among which are a Savery low-boy and a splendid Chippendale chair from a remote village in Georgia

Looking from the living-room into the hall and the dining-room beyond—typical of the vistas to be had in an open plan such as this. Although many strong colors have been used, they have been blended with such skill that there is no sense of over-brilliance

On the main stairway the balustrade is of iron with a walnut handrail done in an intricate pattern of Chinese Chippendale lacquered a brilliant Chinese red. The stair carpet is made from a set of hangings in old French needlepoint, very finely wrought in soft faded colors

Some Pitfalls in Supervision

By W. F. Bartels

XXI. SPANDREL WATERPROOFING

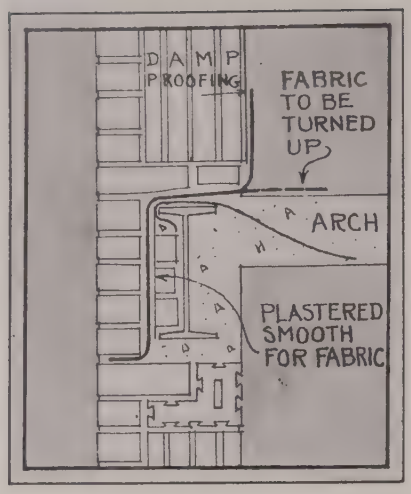
SPANDREL waterproofing is really a protection for the building necessitated by the thinness of the wall at the spandrel beam. Its duty is to escort to the outside any water which may inadvertently trickle into the wall. There are two fabrics used in spandrel work. The first is a fully saturated woven fabric. It is really a closely woven mesh and must not be confused with the fully sealed type of material. It is laid on a bed of mastic which is applied to the spandrel surface. Then a layer of mastic is put over it and the mass is allowed to set. The fabric is the reinforcing element and might be compared to the part played by steel in reinforced concrete.

An inspector once objected to a waterproofing contractor's putting down a saturated fabric with little or no bed for it, whereupon the latter retorted: "The fabric in itself is waterproof." The statement was challenged. The contractor seized the roll of the fabric and cut off a good-sized piece, folded it up in a box shape, held it in front of him, and ordered his foreman to fill it with water. The foreman did as ordered. The water spouted enthusiastically in all directions, and soaked the contractor convincingly. The latter gave up his attempt to prove it waterproof, and substituted a fully sealed material. However, reputable waterproofers will not neglect to bed the fabric properly, realizing that the *asphalt* is the waterproof element and the *fabric* is only a reinforcing agent.

The second type of fabric used is fully sealed (*i. e.*, as a rule it consists of a centre of woven fabric flanked on either side by a veneer of asphalt or bituminous material) and is waterproof in itself. In looks it is similar to a roofing paper, though generally differing in composition. It may also be obtained in varieties which are resistant to acids and alkalis. It requires little bed, in comparison to the open type, if the surface to which it is applied is smooth. It is the most popular type in general use because almost immediately after it is applied the brickwork may be laid on it.

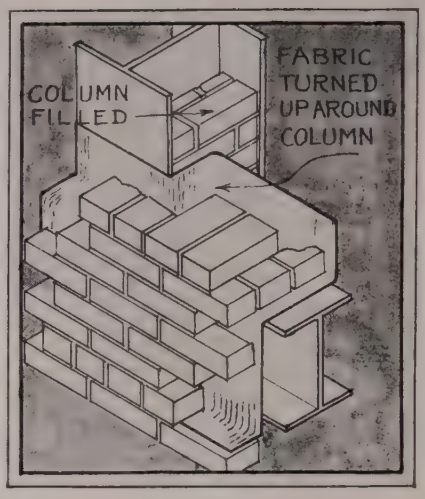
The preparation for the installation of the spandrel waterproofing is simple but important. If the wire mesh of the floor arch turns over the spandrel beam (as it generally does in modern concrete arch work), it should be flattened down on the beam and the ends well turned under the beam flanges to avoid piercing the fabric with any sharp points. The web of the beam should be filled in flush with the edge of the wire mesh bent around the flanges. The superintendent should see that the wires of this mesh where crossing the top of the beam are covered with a bed of mortar having a slight outward pitch. This work should be done a story or so above the bricklayers, so the mortar may have a chance to dry.

After the above mentioned work is completed, the general procedure is as follows. Rolls of the fabric are brought to the floor and left in readiness. When the bricklayers arrive a half story below, the fabric is unrolled in long strips on the floor. When the brickwork arrives at the lintel course one edge of the fabric is placed on the top of the brickwork about a half inch from the outside face of the outer course. The fabric is fitted back against the filled-in web of the spandrel beam (which has been well buttered with mastic), and what is now the top edge of the fabric turned back on the floor. It must extend six inches beyond what will be the inside wall line, so that there will be enough material to turn up on the inside of the wall. The bricklayers, having reached the lintel course, are sometimes shifted to another wall, to allow the waterproofers time in which to apply their material. Generally they wait on the scaffold for the waterproofers to finish their work. If they do the latter it is readily seen why a fully sealed fabric which is laid on a bed of mastic only is preferred to a fabric which is laid in a bed of mastic and then must have mastic trowelled over it. The bricklayers are bound, in the latter case, to get mastic on their hands and trowels, as well as on the face of the brick. Being forced to keep up with their line, the brick-



At left, a section illustrating the dampproofing at junction of oor and outside wall over the steel frame

At right, an isometric detail of the way the dampproofing membrane is carried outside of the columns



Next month Mr. Bartels takes up the superintendent's job with regard to electrical work

layers will not bother to clean off the bricks, and the result will be spots and stains on the brick façade. The superintendent should see that the horizontal laps are at least four inches and that in their hurry the workmen have not forgotten to cement them well together with mastic.

In modern steel skeleton construction, generally a twelve-inch wall is used. As the columns are, for example, 12 inches from flange to flange, and building codes often require 8 inches of masonry on the exterior of columns, it will at once be seen that the inside of the exterior wall will run into the column. Hence the spandrel waterproofing cannot go by the column without cutting or folding. In most cases it is cut and an additional piece put in to go around the column. These pieces should be well cemented to the main piece with mastic, and special attention paid to the corners to see that they are well closed. On façade columns the fabric should be turned up at least 6 inches on three sides of the column, and on corner columns it should be turned up entirely around the column. Then, too, all corners should be reinforced by doubling the material.

When the walls have been carried up a story above the spandrel waterproofing, or at the end of each day, the mortar should be cleaned off the fabric that has been turned in on the floor preparatory to its being turned up and sealed to the dampprofing. If this is not done and the mortar sets, it will later be necessary to remove it with a pick with consequent damage to the fabric. If the spandrel beam is of exceptional depth, the waterproofing is sometimes done in two courses. This will necessitate the superintendent's keeping a sharp lookout, not only for the points above mentioned, but also that the lower course of fabric has its top edge well bonded by mastic to the steel.

Bovenpoort, an old town gate at Herenthals, near Antwerp, Belgium

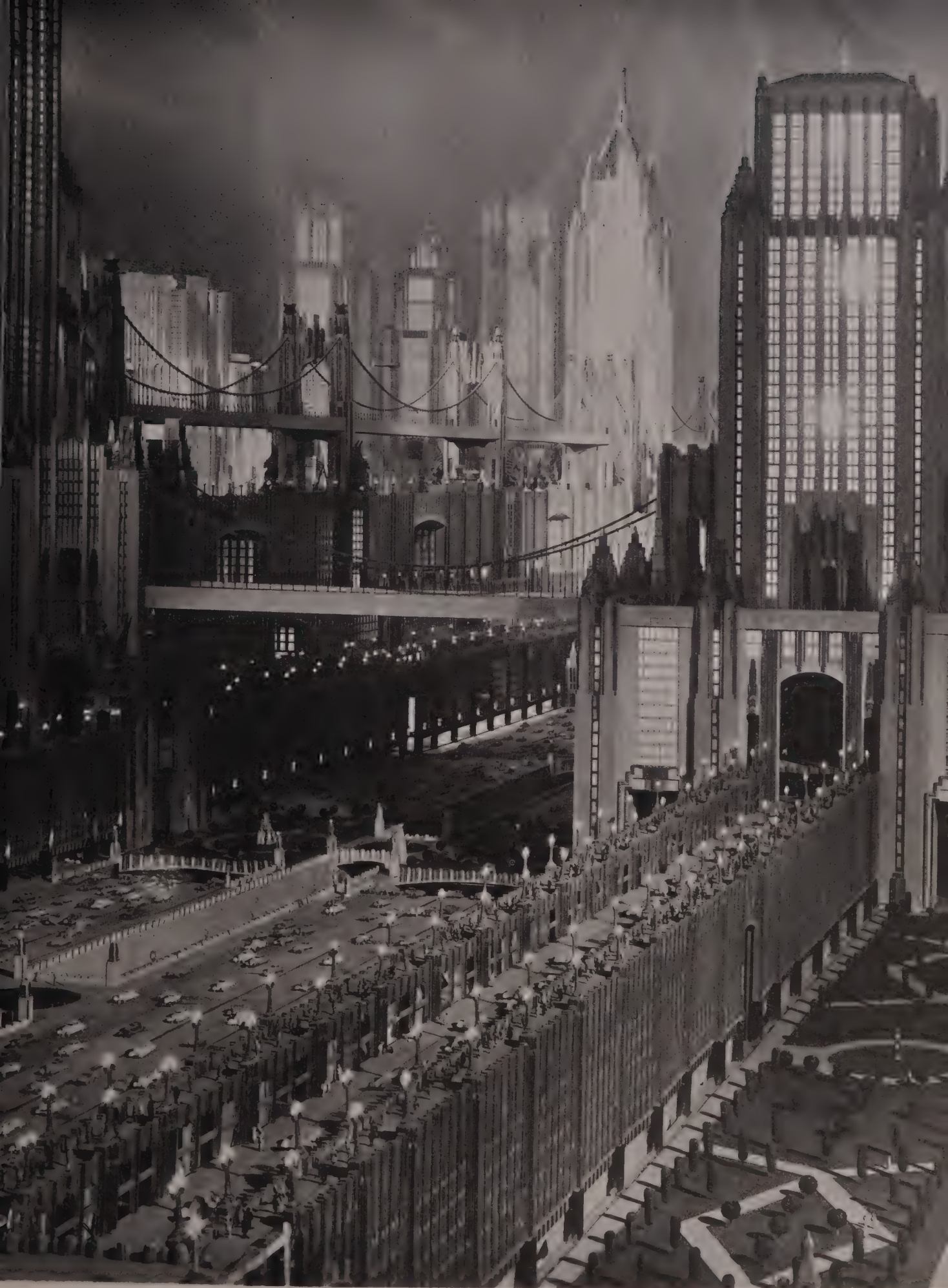
Photograph by Dr. Fritz Wentzel

Photographs by Maurice Goldberg

ENTRANCE DOORS OF CARVED GLASS, HAMBIDGE STUDIO, NEW YORK CITY

DESIGNED BY HAMBIDGE WARNER

The doors, in a salon for the design of women's gowns, depict a history of costume design. The following periods are shown, reading from left to right from the top: Eve, Chaldean, Egyptian, Grecian, Roman, Early Crusade, Moyen Age, Elizabethan, Cromwellian, Louis XVI, American Colonial, Empire, 1850, 1900, 1925, and the pajamas of 1931. Each panel is 9 by 15 inches. Details of some of these figures are shown overleaf



From "Just Imagine," a Fox film visualizing New York City in 1980—somewhat reminiscent of Hugh Ferriss's conceptions

The Editor's Diary

Sunday, May 1.—Robert D. Kohn thinks it is time for a nation-wide appeal to save America's historic monuments from destruction. At the moment the danger spot is Charleston, S. C. Mr. Kohn has appointed a committee of the Institute to work with the local Committee for the Safeguarding of Charleston Architecture. As contrasted with the difficulty of raising a little money to protect these architectural treasures, Mr. Kohn bewails the fact that "Over a hundred thousand dollars was paid recently for a picture now hanging in one of our greatest museums, an entirely ephemeral art of a pet artist recently deceased, which picture, I dare to predict, will not be looked at by any discriminating person twenty years hence. The price paid by the museum for this one picture is one that would conserve for all time two or three Charleston houses and their gardens, if we adopt some such scheme as that of the *Monuments Historiques* of France.

Monday, May 2.—Lunched with H. Van B. Magonigle and Frederick Moore, talking over all the interesting details that arose in connection with the design and execution of our Embassy in Tokyo, to which Magonigle has given such an unmistakable style that the group of buildings, while not Japanese, could be at home only in Japan.

Tuesday, May 3.—Polls which attempt to establish the "ten best buildings in the world" are usually very near futility in result, and the one recently held by *The Federal Architect* seems rather more futile than usual. Fifty architects of reputation and rather wide geographical distribution were asked to name ten buildings whose architectural design was felt to be most satisfactory and appealing to them, with the condition that one of the ten should be a building designed by himself. Naturally, very little could be expected from that sort of a poll. It may be, but probably is not, worth adding that there were twenty-six lists received, naming thirty-five buildings. The first three were the Lincoln Memorial, seventeen votes; the Empire State Building, fourteen votes; Nebraska State Capitol, thirteen.

Wednesday, May 4.—William K. Hutson tells me that I was wrong in saying that Diego Rivera speaks no English. He does speak it, but I imagine not by preference, speaking by choice in Spanish, Russian, and French, the latter best of all. Mrs. Rivera is likewise at home in all these languages and in German as well. Hutson's summing up of Rivera's philosophy of painting, for Americans, is that if we must derive from something, we should go back to primitive American Indian and Mexican art, rather than to the primitive arts of other continents.

Thursday, May 5.—Eugene Savage was telling me of the marble house he has built for himself up at Ossining. Savage had the unusual opportunity of being able to buy for a song a school building of seventy-five to one hundred years ago which had been built of marble. Instead of being sawn to a perfect plane surface, as marble is today, this was faced by hand with a very effective texture of some irregularity which, with the patina gained by its age, makes a wall of unusual character.

Friday, May 6.—Leon V. Solon had a number of architects, painters, and sculptors at his apartment overlooking Central Park to meet Comte Serge Fleury—an interesting small gathering in which one found such contrasting personalities as Eliel Saarinen and Gene Tunney, Ernest Peixotto and William Van Alen, and Ely Jacques Kahn, who tells me that he is designing a very large brewery.

Saturday, May 7.—Eliel Saarinen in from Cranbrook with part of the manuscript of a book he is writing. If it is possible to base a judgment on a few preliminary chapters, I should say that we are to have here another contribution to architectural literature as profound as Geoffrey Scott's *The Architecture of Humanism* and Seward Rathbun's *A Background to Architecture.*

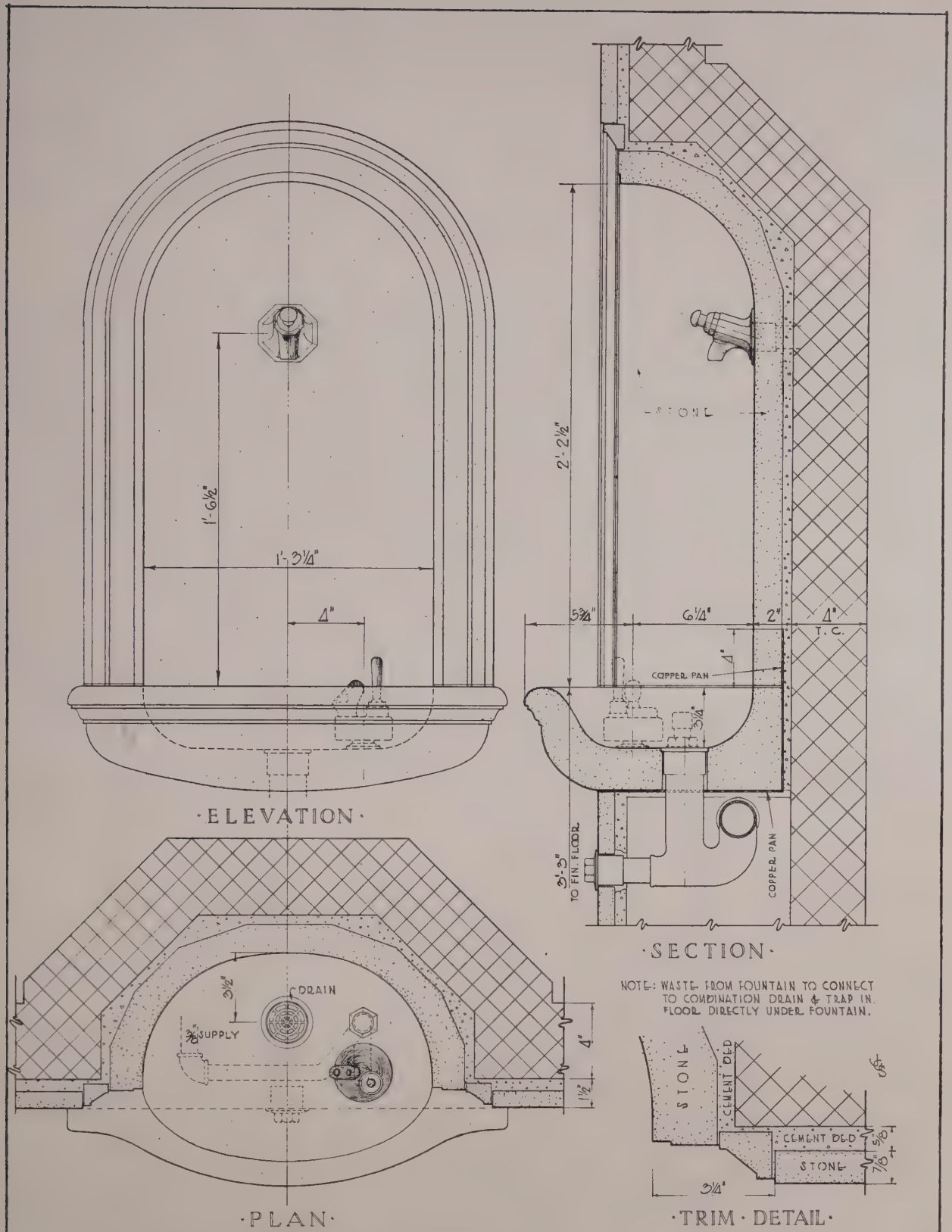
Monday, May 9.—In the discussion the other night at the New York Chapter meeting, when the status and functions of the architect were being examined, Arthur Holden made the point that when the architect realizes that he should be something more than a wielder of pencil and T-square, it will be better for the profession and better for the country. Fundamentally the architect is a professional adviser. It will probably be increasingly the case that this advice will be rendered on many facets of the problem of securing for the layman an economic, stable, and beautiful structure fitted to his needs; the T-square and pencil may frequently remain unused and unneeded.

Wednesday, May 11.—James Layng Mills was telling me today of some of the interesting paths through which his researches have led him recently in seeking documents relating to Federal Hall. Mr. Mills was working with Joseph H. Freedlander in rebuilding a full-size replica of the famous building that was our first seat of government in New York City. After considerable search an engraving was found in a New England magazine which seemed to be a carefully drawn main façade, including the cupola. The engraver, however, was a man whose work architecturally was certainly not of the highest order, as indicated by his other engravings. It was reasoned, therefore, that he had something definite to work from in making this plate of Federal Hall. Mills's opinion, which is probably as good as any one's, and which is substantiated by a number of other distantly related facts, is that Charles Bulfinch visited New York and measured Federal Hall accurately. On his return he may have allowed the Boston engraver to use it for his illustration. Having what seemed to be a logical representation of the façade, the question immediately arose as to the exact scale. It would have been possible to approximate it by the size of windows, steps, etc., but Mills succeeded in having dug out for him, in the New York Hall of Records, a survey which showed quite accurately the size of the building in outline plan and its exact location on Wall Street. This outline plan was not a mere rectangle, but showed the offsets and minor variations. These agreed to the inch with the magazine illustration, supposedly by Bulfinch. The result is that the replica in Bryant Park, New York City, comes very near being a facsimile of L'Enfant's building excepting in material.

Thursday, May 12.—I was under the impression that the era of faked age and faked handicraft in architecture had about come to an end. Not so, for a newspaper article copyrighted by the Architects' Small House Service Bureau says:

"If we want to make the outside walls look like the old walls of half-timber, we have to nail thin boards onto the sheathing to imitate the heavy framing members and then plaster stucco between them to give the appearance of mud filling.

"Right at this point most houses in this style fall down. The boards which are used to imitate the big framing members are usually straight and smooth as they come from the planing mill. They look like what they are—boards nailed to the outside. As a result, they have no meaning; they are obviously useless, and in ninety-nine cases out of a hundred are so arranged by the builders as to have no structural significance at all.



· DETAIL · OF · BUILT-IN · DRINKING · FOUNTAIN ·

A Series of Working Drawings

by Jack G. Stewart

·SCALE: 1" 2" 3" 4"·

·PLATE · Nº 26·

"A few clever architects have reproduced the effect of these old half-timber buildings by doctoring these boards. In the first place, they have purposely had them sawed from small trees so that the bent shape of the trunk would be visible along the edge of the board. They have had the carpenter rough up the surface with an adz.

"After this they have subjected the surface to a sand blast, which eats away the soft part of the wood as will the weather through hundreds of years.

"To reproduce the appearance of a frame fastened with wooden pins, they have had the carpenter bore holes at certain places near the joints and refilled them with dowels of wood." All of which is about the most discouraging piece of printed matter bearing on architecture that I have seen for many a long day.

Friday, May 13.—It may be recalled that William H. Ham, writing on "Prefabrication and the Small House," laid down a fundamental condition that "no design shall be used in creating these homes which has not had a precedent set from the standpoint of art and structure for the last one hundred years in America." Unquestionably there were those who thought him a reactionary. If so, here is another one, Robert R. Meikle, of Monahan & Meikle, architects, of Pawtucket.

"The so-called modernistic school of architecture will be short-lived. It is as definitely 'dated' as the Victorian school, and probably won't last as long. . . .

"The Colonial type has withstood the test of time. A century hence, New Englanders will take just as much pride in Colonial houses as they do today.

"Despite the present modernistic vogue, the house with characteristic Colonial lines and detail is more marketable than any other type of dwelling. It will continue to be saleable because it embodies a style which is permanent; it is not the fad of the moment."

Nevertheless, it seems to me inevitable that we should forget the letter of past styles while holding fast to such fundamentals as they possess which are still applicable to our own needs. The moment we begin copying the letter rather than the spirit we are starting down the hill of a decadence. The builders of 1800 built houses that were not like those of 1780—they were better. If we cannot build better houses, rather than copy the lines and details of those built a century or more ago, we should not be practicing architecture. Perhaps we should be in the antique business.

Saturday, May 14.—The Portland Cement Association is afraid that my recent notes on sugar in lime mortar may be misunderstood. The addition of sugar to a cement lime mortar in the customary measures should not be attempted. Sugar not only fails to help Portland cement mortar and cement lime mortars, but it is a positive detriment.

Monday, May 16.—They are talking of securing interior wall colors in the Chicago Fair by means of electric lighting, rather than by paint or other covering. The scheme, of course, is not entirely new, but its use on such a scale brings some new problems. The matter is simplified, of course, by the fact that the exposition buildings are to have no daylight inside and no windows.

Tuesday, May 17.—Lorado Taft has a rather low opinion of the American people, in so far as our art appreciation goes. He is quoted as saying to the Eastern States Association of Professional Schools for Teachers:

"As a nation we have little accumulative wisdom and slight appreciation of the gifts of the ages. Our life is casual without background. Our homes seem to be on casters like our furniture, ever moving, ever changing.

"Our recreations are hectic at forty or fifty miles an hour; our music is jazz; our drama the movies; our literature the strident daily. In the other arts we are practically immune."

Wednesday, May 18.—It is astonishing how many words are wasted these days. For example, quoting from the ponderous eight principles adopted by the Committeee on Business Reports, Statistical and Trade Information of the National Conference on Construction (which title in itself seems rather wordy):

"1. Statistics are merely aids to individual judgment; they are not substitutes for judgment.

"2. Statistics are useful only if really significant.

"3. Additional statistics are required only when existing information is inadequate.

"4. The cost of collecting statistics should be commensurate with their value.

"5. Statistics growing out of records kept in the normal course of business are usually those which are most easily collected and most likely to be of use.

"6. Statistics relative to construction should, in so far as practicable, be developed and maintained on a uniform basis.

"7. Statistics relative to construction must generally be developed and interpreted locally.

"8. Statistics relative to construction should generally be maintained continuously."

Which leaves us just about where we were before.

Friday, May 20.—Seeing in the newspapers that Calvin Coolidge was about to put a six-room addition to the old house at Plymouth, Vt., I wrote him asking for the name of his architect, so that we might publish a photograph or so of it as a matter of news. Mr. Coolidge writes me:

"The addition to my house is so modest that it did not require the work of an architect beyond making some floor plans for me. . . ."

Right here, it seems to me, is one of the fundamental needs of the architectural profession—to have people realize that just as we go to a doctor for an infected finger or to have a leg amputated, so too, we should regard the architect as our professional adviser in matters of building, whether it be putting on a new sun porch or building a whole new structure. Once an architect has turned over the keys of the building to the owner, he very seldom comes into the picture again. The public—and possibly the architect himself to a large extent—feels that minor matters of alterations, redecorating, repairs, and such things are outside the architect's province. This is not the case in England. It should not be the case here. The architect himself could undoubtedly do much toward restoring a proper balance—by informing every client that his interest in the building continues after its completion, and that his advice and assistance in minor matters will always be available at a correspondingly minor fee.

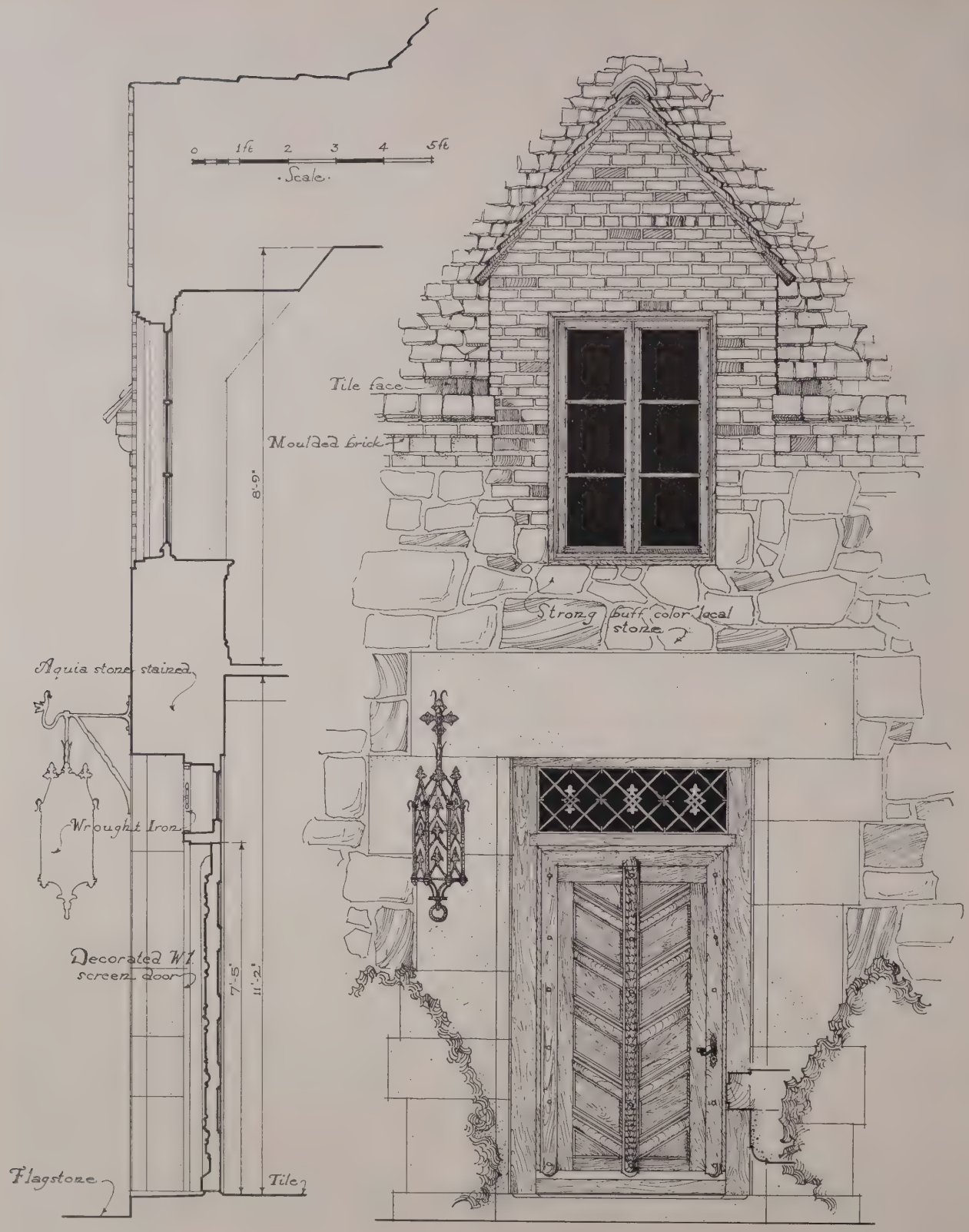
Saturday, May 21.—It is a difficult matter for the practicing architect of today to keep up with the rapid progress of materials, methods, accessories. They make their appearance on the market rather more rapidly than the mind of any one man can compass them. I was talking with a man at lunch several days ago, however, who pointed out particularly the blindness of architects to the possibilities of automatic protection of buildings. The automatic sprinkler is well established, watchman's alarm systems are in wide use, but the profession generally does not seem to have grasped the fact that there are organizations in existence set up for the purpose of receiving and acting upon electric messages. The extent to which this sort of protection is adapted can scarcely be pictured. A certain degree of heat will turn on a sprinkler system which thereafter continues to sprinkle. How much better if the same degree of heat sent a warning electrically to a central office whose agents would investigate the matter before much damage could be caused by either fire or water. Industrial plants are using this possibility in maintaining needed temperatures in vats, refrigeration plants, and the like. In a word, the architect's duty to the owner is not discharged until the possible ideas of such systems are employed or at least brought to the owner's attention.

FAVORITE FEATURES

IV. TILDEN, REGISTER & PEPPER

ENTRANCE DETAIL OF A HOUSE AT CHESTNUT HILL, PA., FOR SCHOFIELD ANDREWS

(*See detail drawing overleaf*)



Section

Main Entrance Detail

See photographic illustration overleaf

CONTACTS

DEVOTED TO A BETTER UNDERSTANDING OF THE BUSINESS SIDE OF ARCHITECTURE AND ITS RELATION TO THE INDUSTRIES

Year-Round Air Conditioning in the Home: II

By W. D. Jordan

President, Air-Control Systems, Inc.

THE fifth factor, "Cooling," requires no comment from the standpoint of its importance to comfort. It is generally accepted that it is neither healthful nor practicable to maintain a temperature differential of more than 10° to 15° F.

To determine the amount of refrigeration required to maintain a temperature of 80° and a relative humidity of 50 per cent in the living-room of a typical residence against outdoor conditions of 95° F. and 60 per cent relative humidity, it is necessary to calculate the heat load from all sources. Let us assume a living-room 26 ft. by 18 ft. by 9 ft., containing 4,212 cu. ft. It has three exposed walls, the dining-room and kitchen being on the opposite side of the entrance hall, with a heat load as follows:

Cubage, 4200.
Infiltration, half air change per hour.
Air conditions:
Outside, 95°, 60 per cent rel. hum.
Inside, 80°, 50 per cent rel. hum.
Heat load for cooling:

Transmission	sq. ft.	× K	× degree diff.	= B. t. u. per hr.
Walls, outside	516	.117	15	894
Walls, inside	192	.110	10	212
Floor	468	.220	—	—
Ceiling	468	.220	10	982
Doors	42	1.13	10	475
Glass	119	1.13	15	2022
Sun effect	None			—
El. lt. and power, 300 watts × 3.41				1023
Occupants, 8 × 300 B. t. u.				2400
Infiltration, $\frac{4200 \times .24}{2 \times 13.98} \times 15$				540
Dehumidification:				
Exhalation, 8 × .1 lb. × 1000				800
Infiltration, $\frac{4200}{2} \times \frac{4.86}{7000} \times 1050$				1534
Total calculated heat load				10,882

The calculation shows a total heat load of 10,880 B. t. u. per hour with eight persons in the room. If there is no door in the opening between the living-room and hall, there will be convection currents through that opening, with considerable loss of cooling effect. A decorative screen placed across this opening, when it is desirable to confine cooling to the living-room, would be helpful, as it would decrease the air movement even though it had no insulating value.

It is evident that an air-conditioning unit must have approximately one-ton capacity to satisfactorily cool a large living-room in a residence or the equivalent space in an office. Cooling of the entire residence would likely require five tons or more of refrigeration, and it is not probable that many such installations will be made in residences within the near future.

It appears that the immediate demand is for zone cooling in residences, cooling the living-room during the day and perhaps one or two bedrooms at night. In many cases it will be possible to install the unit air conditioner in the basement of the residence, with one discharge duct to the living-room and another discharge duct to one or two bedrooms, with damper control to permit discharging the cooled air through either duct.

The sixth factor, "Dehumidification," is extremely important from the standpoint of comfort in most sections of the country where cooling is needed. A high relative humidity in summer is actually more oppressive than a high temperature with a comparatively low relative humidity.

In calculating the heat load in the living-room, allowance was made for dehumidification on the basis of the removal of excess moisture from infiltering air as well as the moisture given off by the occupants. The total moisture to be removed was 2.3 lbs. per hour. The same amount of heat energy is released in condensing 1 lb. of water from the air as is absorbed in evaporating 1 lb. of water, or approximately 1,050 B. t. u.; therefore to condense 2.3 lbs. will require 2,334 B. t. u. of the capacity of the refrigerating machine for dehumidification purposes.

Dehumidification is accomplished by lowering the temperature of the air circulated sufficiently far below the dew-point to condense the required number of grains of moisture from each cubic foot of air passing through the unit. If the air conditioner circulates 300 c. f. m., or 18,000 cu. ft. per hour, it is necessary to condense .9 gr. from each cubic foot of air circulated in order to remove a total of 2.3 lbs. of water per hour, and the air circulated must be cooled to a temperature which will insure the removal of that quantity of mositure. The requirement for dehumidification is that the volume of air circulated by the unit conditioner be in balance with the refrigerating capacity of the unit. The unit conditioner handling a large volume of air and cooling the air circulated only 10° F. would not dehumidify to any great extent as the air would be cooled little if any below the dew-point.

Let us now summarize briefly the requirements to be met on all six of the factors enumerated to properly condition the air in this typical residence of 25,000 cu. ft. These requirements will serve as a yardstick by which to measure the efficiency

of any unit air conditioner under consideration for the job:

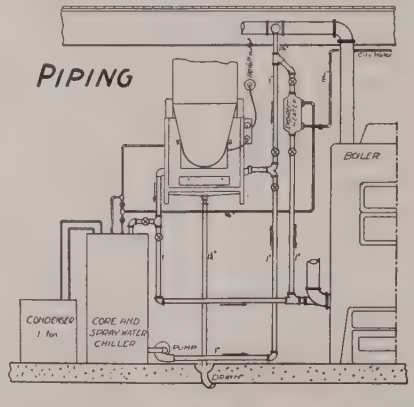
REQUIREMENTS IN RESIDENCE:

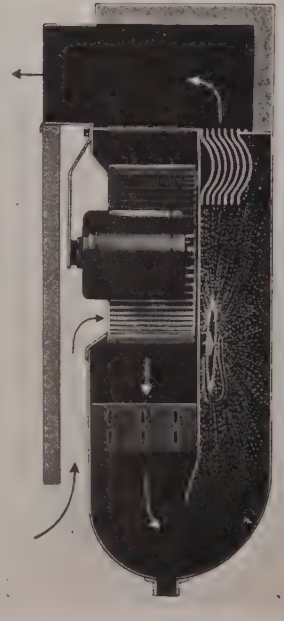
25,000 CU. FT.

1. Air Motion: Constant forced circulation, with minimum of 20 c. f. m. per person.
2. Purification: Continuous supply of not less than 20 c. f. m. per person, circulated through dense spray, or other means of removing impurities.
3. Heating: Minimum of 8,400 B. t. u. available for evaporation.
4. Humidification: Evaporation of 8 lbs. water per hour.
5. Cooling: Removal of 10,880 B. t. u. per hour for 10° to 15° F. differential in living-room.
6. Dehumidification: Removal of 2.3 lbs. water per hour.

We will now consider the application of a specific unit air conditioner for installation in this typical residence. The cross-section illustration of the unit shows the principle of operation. For air purification, the air is circulated through the spray chamber completely filled with a very dense mist, with the eliminator plates at the top of the spray chamber serving as scrubber plates for the removal of dust and other impurities. The air circulated passes downward from the fan through the finned heating core which is connected to any steam, hot-water, or vapor heating system, preheating the air before it passes into the washing chamber. Evaporation is obtained by circulating the preheated air through the warm spray water which is very finely atomized. Provision is made for regulating the capacity of the unit to suit the requirements of the space in which it is installed. Dampers are provided which permit by-passing up to one-half of the air around the spray chamber. The pressure and temperature of the spray water may be regulated to increase or decrease evaporation. A modulating valve on the heat supply to the core will permit reducing the core temperature, thereby decreasing the preheating of the air. The motor permits easy regulation of the fan speed to decrease or increase the volume of air circulated. The installer regulates all of these factors to suit the space requirements at the time the unit is installed. Thereafter the inherent regulation of the unit will maintain the relative humidity within relatively close limits. Maximum evaporation is needed in severely cold weather, and since the heating boiler operates at its maximum temperature during cold weather periods, maximum heating and maximum temperature spray water are automatically supplied to the conditioner. In mild weather when less evaporation is needed, less heat is supplied to the core and spray water is supplied at a lower temperature; therefore the evaporation is automatically reduced to the minimum by the action of the room thermostat on the heating system.

For cooling purposes a one-ton refrigerating machine is used in connection with this unit conditioner. Cold water or an anti-freeze solution is circulated through the finned core at the rate of 8 to 10 gallons per minute, the finned core being so connected to both the heating boiler and the water or brine tank on the refrigerating machine that gate valves on supply and return lines permit changing from one system to the other. The major part of the cooling is accomplished by circulating the air through the core. However, the spray water is also cooled to a temperature of 35° F., hence the air is further cooled and dehumidified in the spray chamber. The combination of the finned core and the refrigerated spray water will utilize the full capacity of a one-ton refrigerating machine, with a total heat removal of 12,000 B. t. u. per hour.





Above, piping arrangement for hot-water heating boiler
Below, cross-section of an air-conditioning unit

The air-washing feature of this particular unit is especially desirable for summer operation. To successfully cool the living-room of a residence, or an office or shop, it is necessary to keep all outside doors and windows closed. Infiltration of outdoor air will be very slight with a temperature differential of only 10° to 15° and little or no wind velocity. In a tightly closed room, with several occupants, the air will soon become stuffy and foul with odors of breath and perspiration unless the air is washed or provision made for introducing a considerable volume of outdoor air. The introduction of outdoor air increases the load on the refrigerating machine to the extent of the differential being maintained between the indoor and outdoor temperatures and humidities; therefore it is an economy to recirculate and wash the air.

Air conditioning is a new industry and several of its essential factors are intangible; therefore many persons who buy air-conditioning equipment during the next year or so will do so without knowing exactly what they should have or what they should expect. This makes it extremely important that architects and engineers be thoroughly familiar with the requirements for satisfactory air conditioning in residences, offices, and small commercial establishments in order that they may protect the interests of their clients. It is also extremely important that manufacturers of air-conditioning equipment be ultra conservative in their ratings and performance claims to avoid having purchasers disappointed with the results obtained.

1926
DORMER WINDOWS
SHUTTERS AND BLINDS

1927
ENGLISH PANELLING
GEORGIAN STAIRWAYS
STONE MASONRY TEXTURES
ENGLISH CHIMNEYS
FANLIGHTS AND OVERDOORS
TEXTURES OF BRICKWORK
IRON RAILINGS
DOOR HARDWARE
PALLADIAN MOTIVES
GABLE ENDS
COLONIAL TOP-RAILINGS
CIRCULAR AND OVAL WINDOWS

1928
BUILT-IN BOOKCASES
CHIMNEY TOPS
DOOR HOODS
BAY WINDOWS
CUPOLAS
GARDEN GATES
STAIR ENDS
BALCONIES
GARDEN WALLS
ARCADES
PLASTER CEILINGS
CORNICES OF WOOD

1929
DOORWAY LIGHTING
ENGLISH FIREPLACES
GATE-POST TOPS
GARDEN STEPS
RAIN LEADER HEADS
GARDEN POOLS
QUOINS
INTERIOR PAVING
BELT COURSES
KEYSTONES
AIDS TO FENESTRATION
BALUSTRADES

1930
SPANDRELS
CHANCEL FURNITURE
BUSINESS BUILDING ENTRANCES
GARDEN SHELTERS
ELEVATOR DOORS
ENTRANCE PORCHES
PATIOS
TREILLAGE
FLAGPOLE HOLDERS
CASEMENT WINDOWS
FENCES OF WOOD
GOTHIC DOORWAYS

1931
BANKING-ROOM CHECK DESKS
SECOND-STORY PORCHES
TOWER CLOCKS
ALTARS
GARAGE DOORS
MAIL-CHUTE BOXES
WEATHER-VANES
BANK ENTRANCES
URNS
WINDOW GRILLES
CHINA CUPBOARDS
PARAPETS

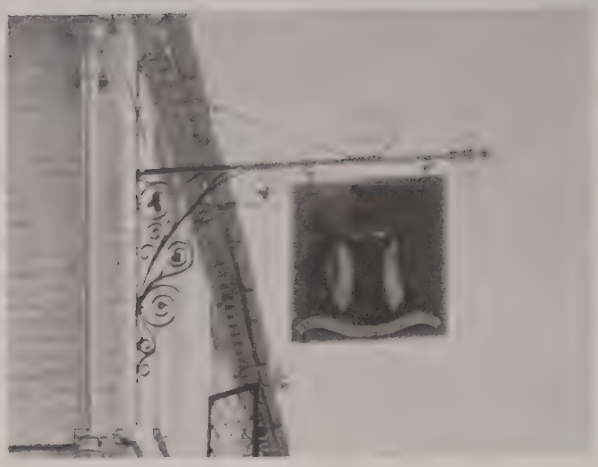
1932
RADIATOR ENCLOSURES
INTERIOR CLOCKS
OUTSIDE STAIRWAYS
LEADED GLASS MEDALLIONS
EXTERIOR DOORS OF WOOD
METAL FENCES

THE SIXTY-NINTH IN A SERIES OF COLLECTIONS OF PHOTOGRAPHS ILLUSTRATING VARIOUS MINOR ARCHITECTURAL DETAILS

ARCHITECTURE'S PORTFOLIO OF HANGING SIGNS

Subjects of Previous Portfolios Are Listed at Left

Forthcoming Portfolios will be devoted to the following subjects: Wood Ceilings (August), Marquises (September), Wall Sheathing (October), French Stonework (November), Over-mantel Treatments (December), and Bank Screens (January). Photographs showing interesting examples under any of these headings will be welcomed by the Editor, though it should be noted that these respective issues are made up about six weeks in advance of publication date.



Buckinghamshire, England

Darcy Braddell & Humphry Deane

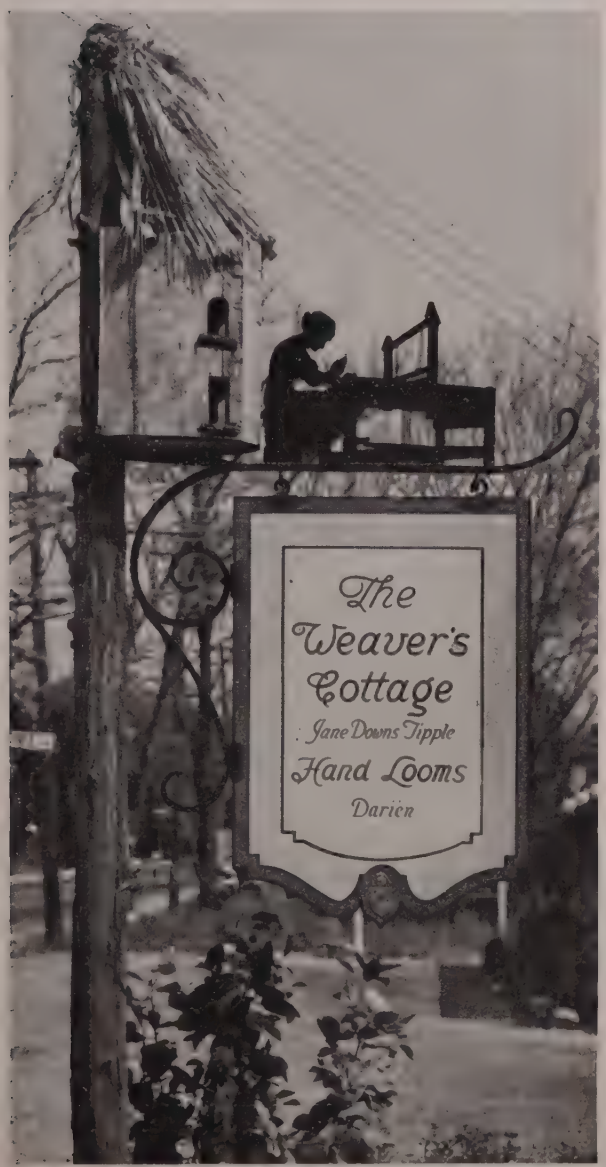
M. H. Westhoff

James R. Marsh

New England road sign

Canterbury, England

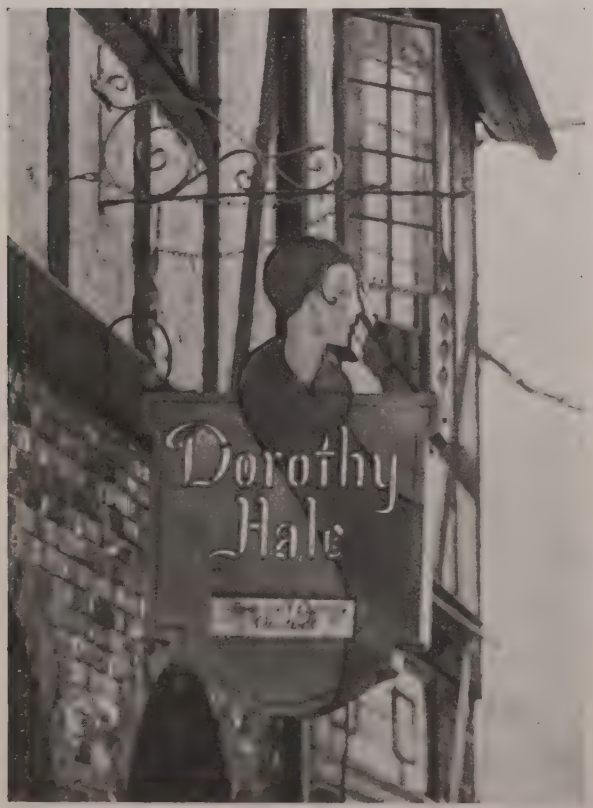
D. D. Merrill *Putnam & Cox*



Frederick L. Ackerman

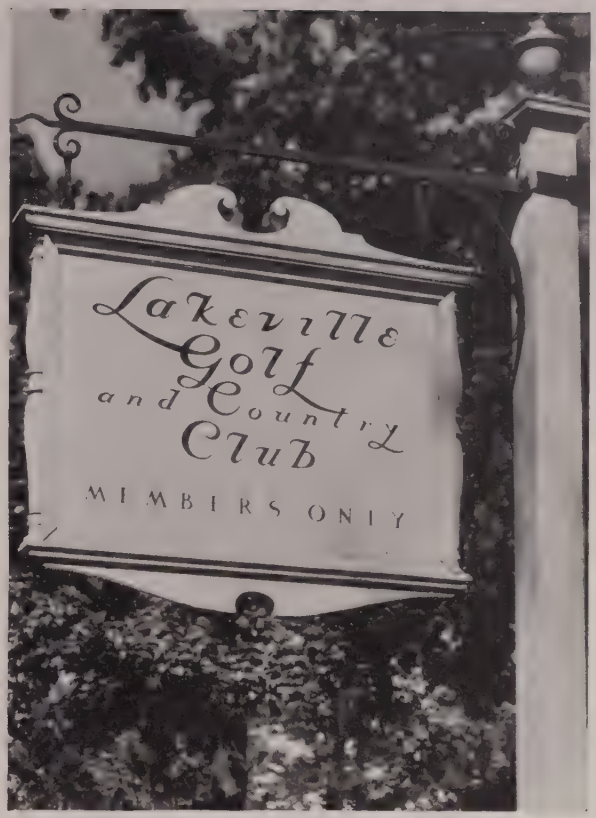
A Connecticut inn

A suburban shop



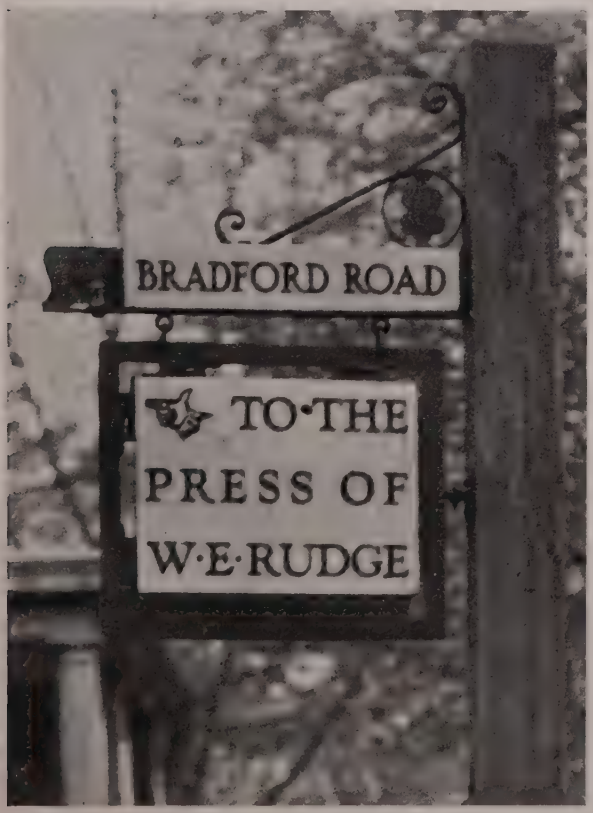
A roadside tea house

A country real estate office



Edgar and Verna Cook Salomonsky

W. E. Rudge



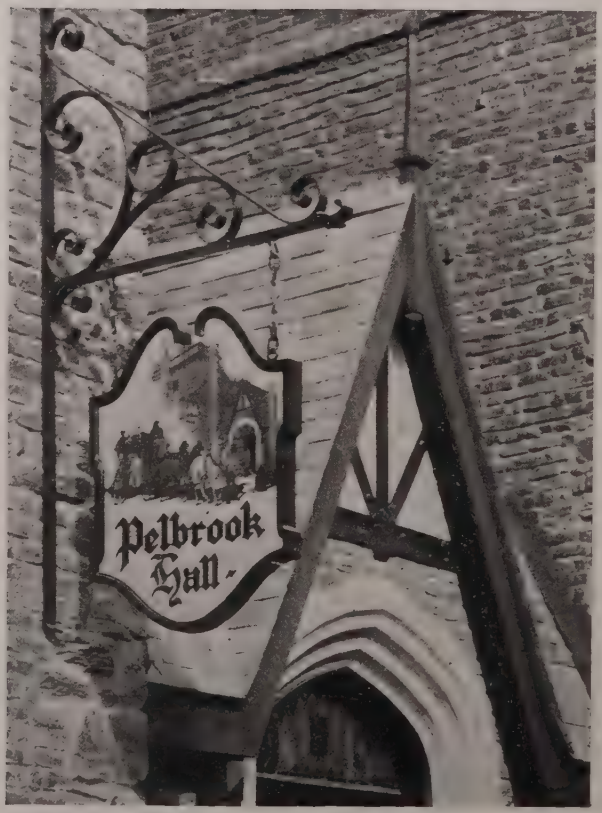
Suburban antique shop

Englewood, N. J.

Westchester County, N. Y., road sign

An inn in Basking Ridge, N. J.

George Fred Pelham



In the outskirts of New York

On a New York City street

On a New York City street

On a Long Island boulevard

Long Island road sign

Edwin R. Closs

A street sign combination

Dairy farm in New Jersey

Edwin R. Cross

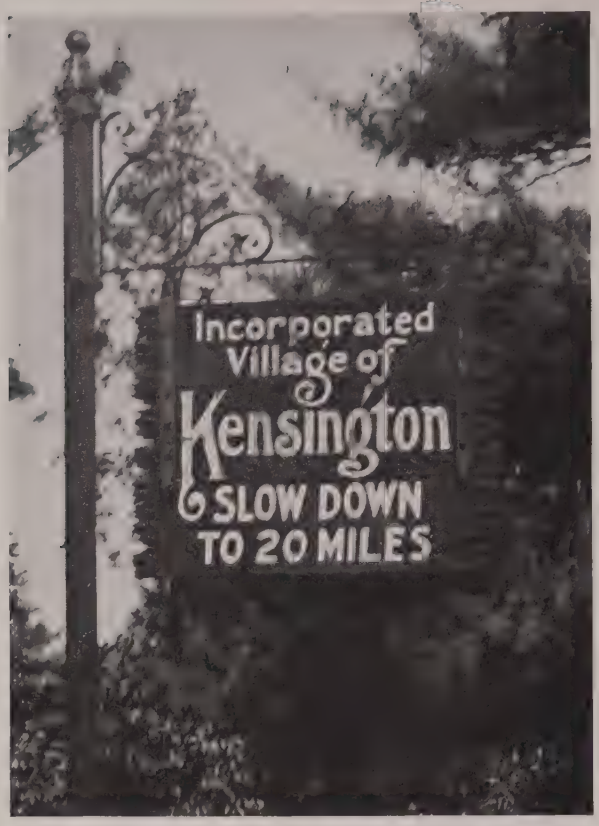
Verna Cook Salomonsky

Bedford Village, N. Y.

Dating a Connecticut road

In Jones Beach State Park, Long Island
W. Earl Andrews, C. C. Combs, and Francis Cormier

In Jones Beach State Park, Long Island
W. Earl Andrews, C. C. Combs, and Francis Cormier



On Long Island

Modern commercial sign, New York

On Long Island

A Long Island tea house

Englewood, N. J.

Jones Beach State Park, Long Island

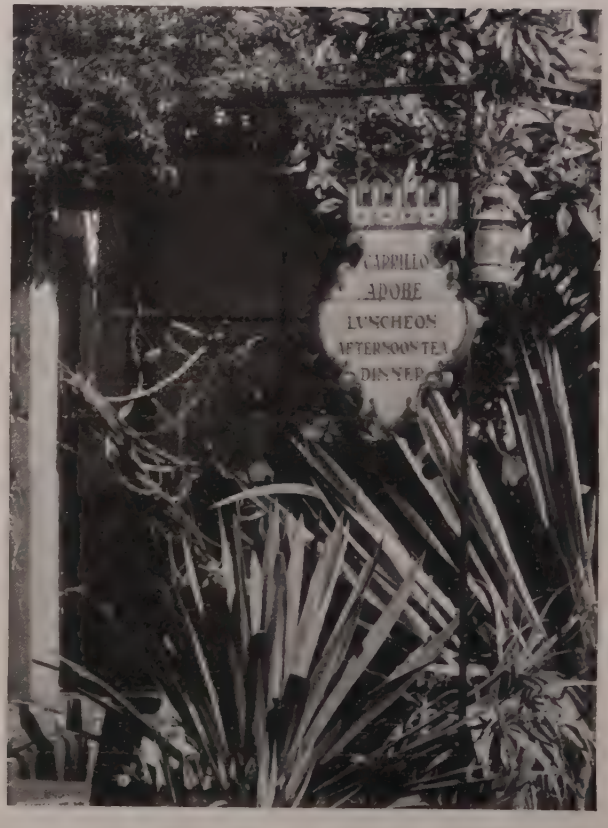
Iron and concrete *Dwight James Baum*

A Long Island craft shop

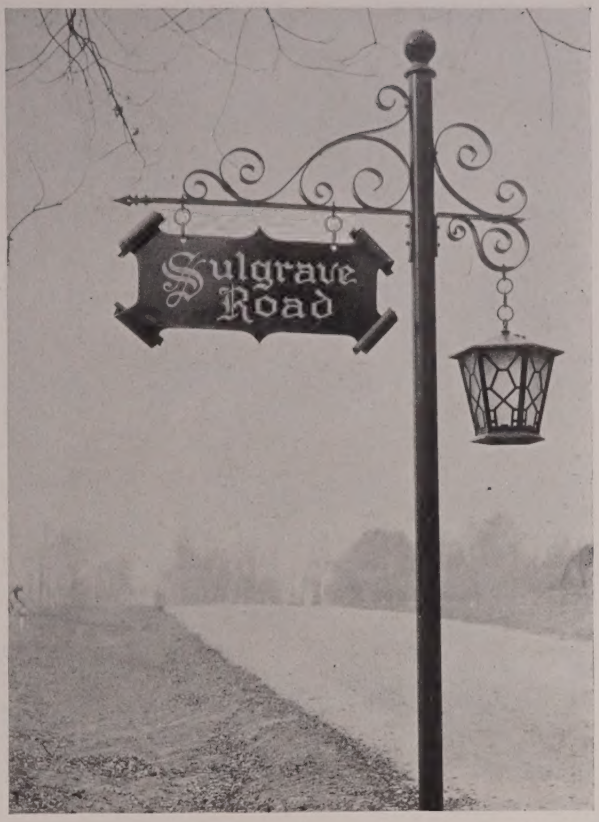
Todhunter, Inc.

Frederick L. Ackerman

In Southern California

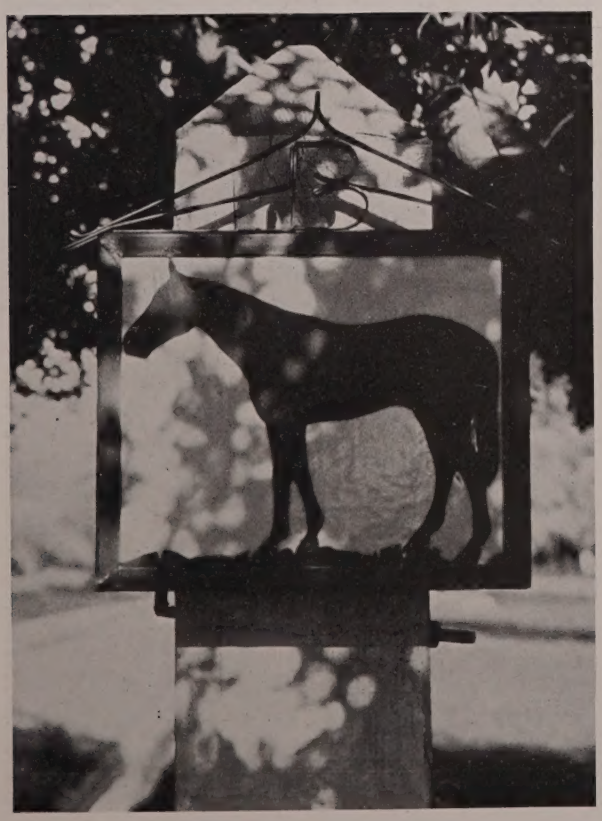


Todhunter, Inc.

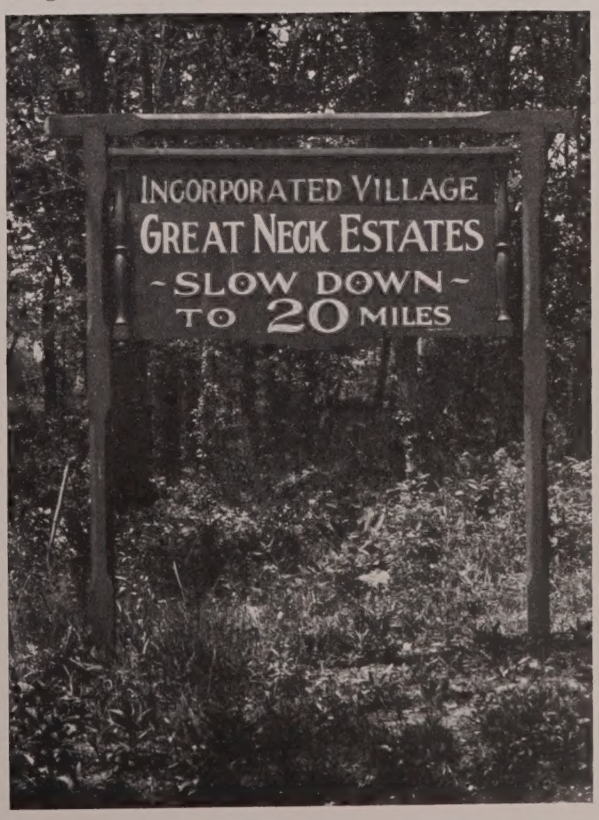


Logan Company, craftsmen

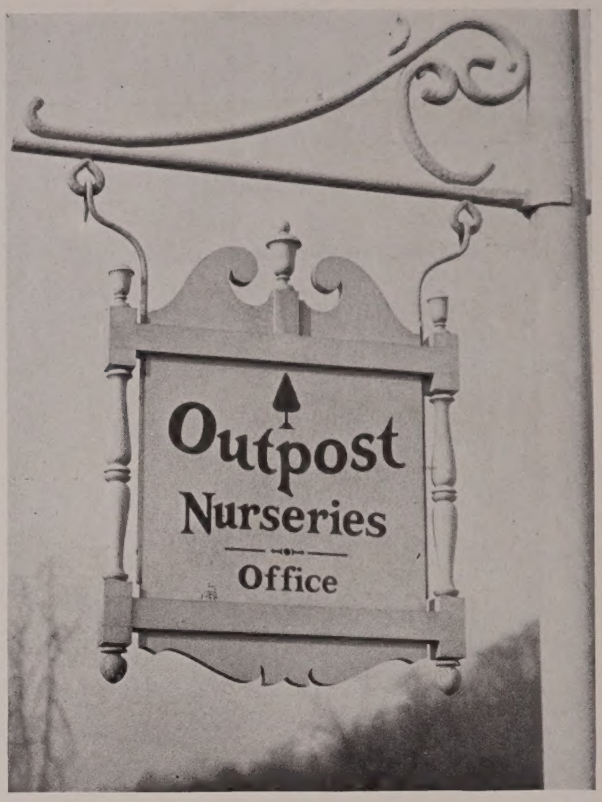
Phoenix, Ariz.



Long Island



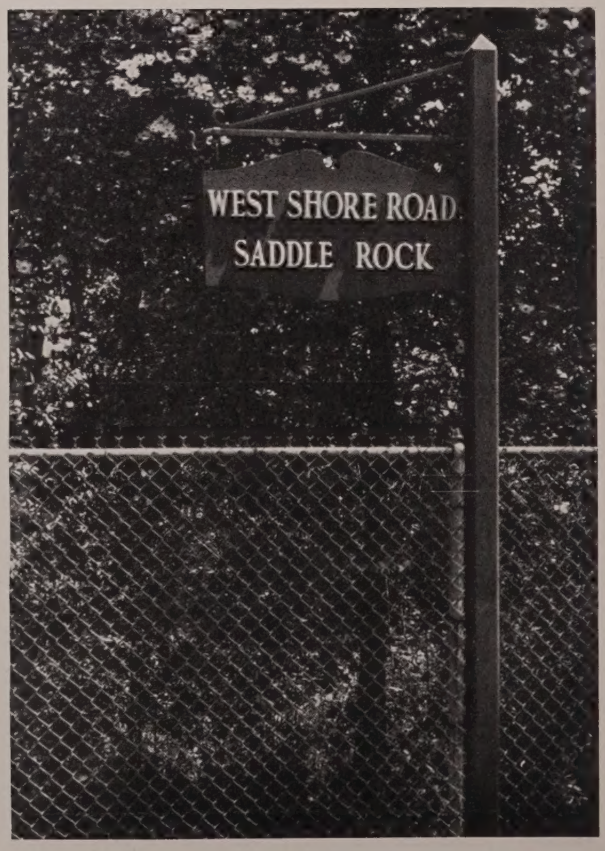
A suburban shop



Ridgefield, Conn.

Utilizing a tree

Raised lettering for greater legibility



OLD CATHEDRAL CHURCH, HALLETTSVILLE, TEXAS

≪ ARCHITECTURE ≫ *From the drawing in lithographic crayon by Edward M. Schiwetz*